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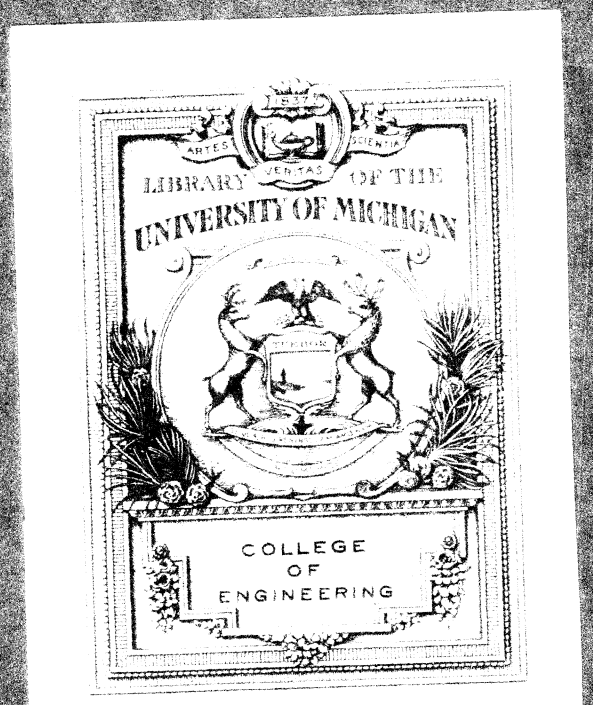

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NAVAL ARCHITECTURE:

A TREATISE

ON

LAYING OFF AND BUILDING WOOD, IRON, AND COMPOSITE SHIPS.

BY

SAMUEL J. P. THEARLE,

Fellow of the Royal School of Naval Architecture; Member of the Institution of Naval Architects; of the Controller of the Navy's Department, Admiralty, Whitehall.

VOL. II.—PLATES.

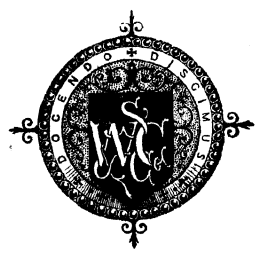

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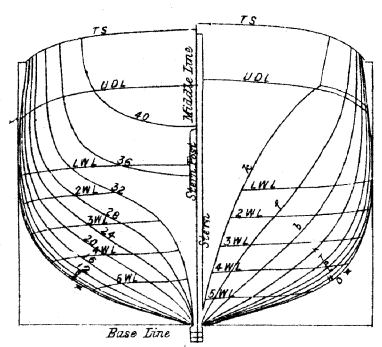
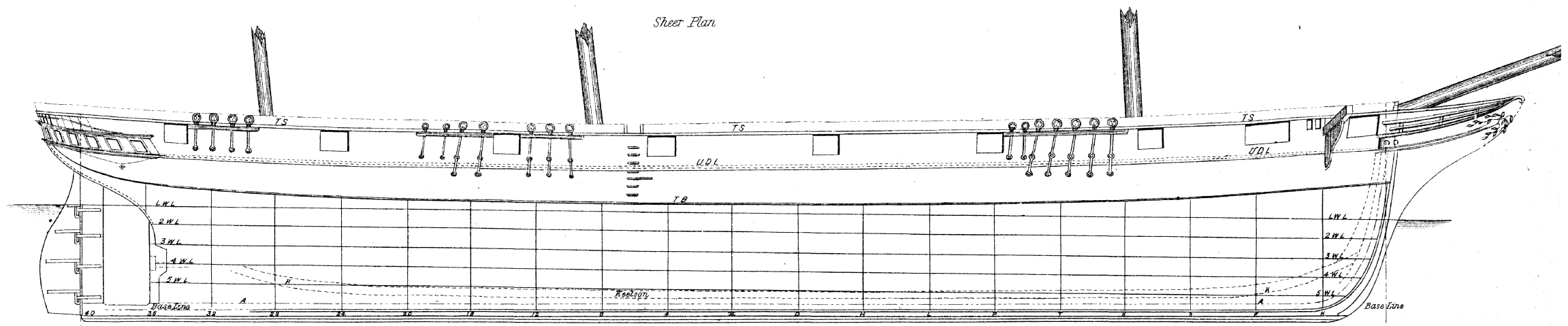
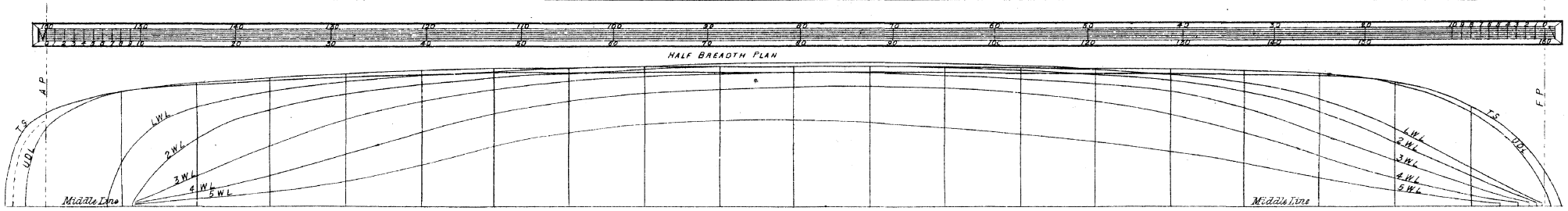
Plate I

Body Plan

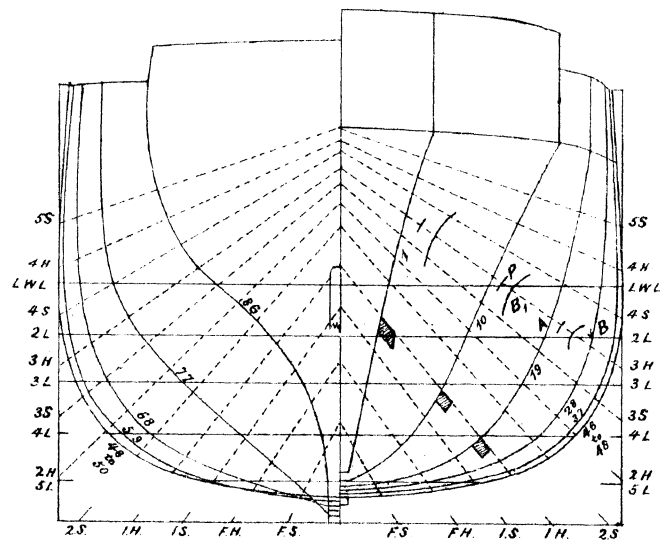


Sheer Plan





PlateII



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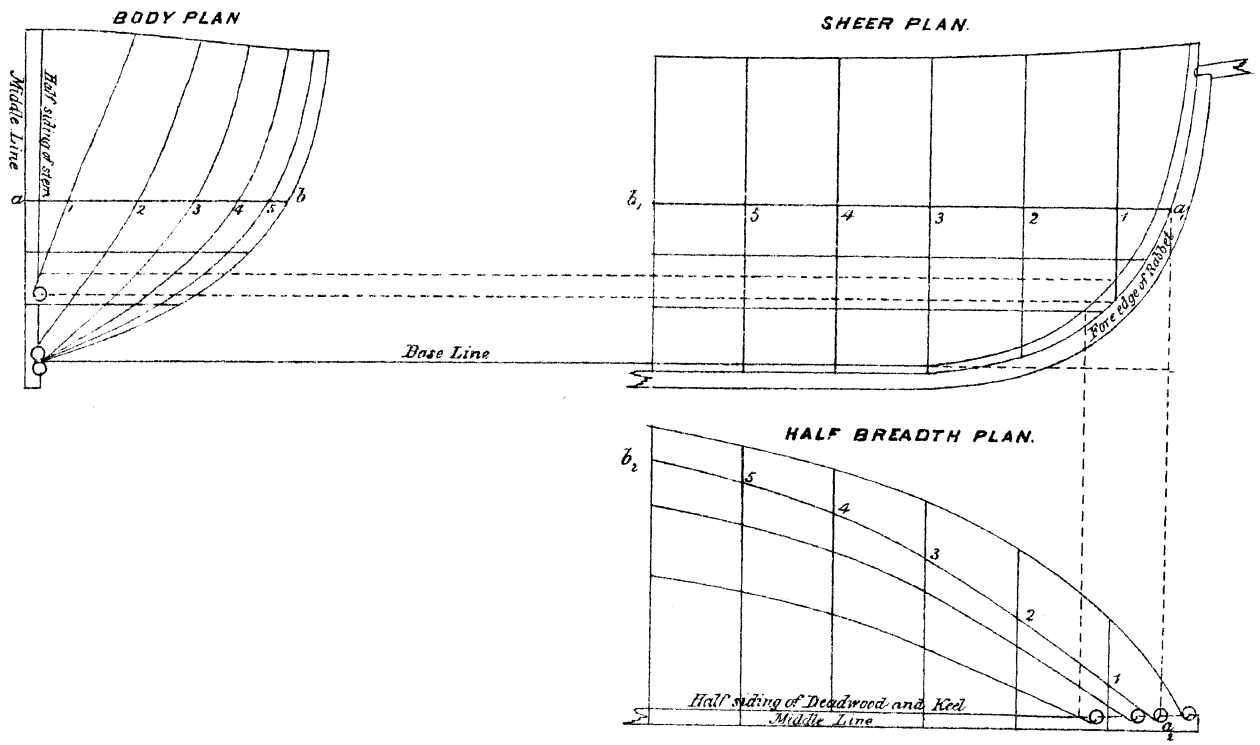

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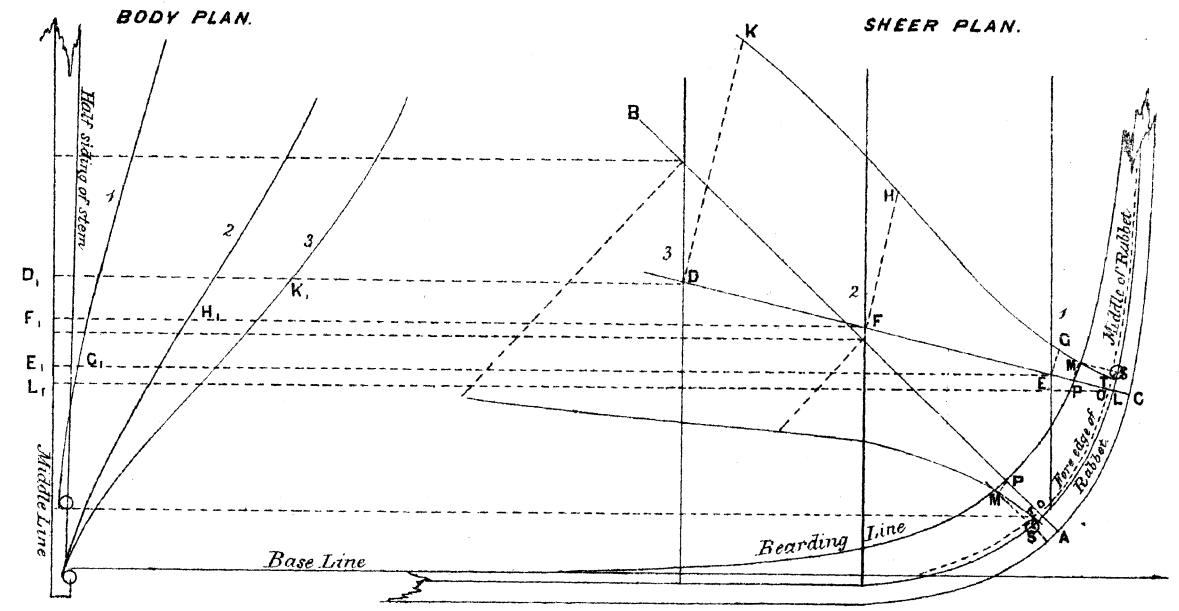

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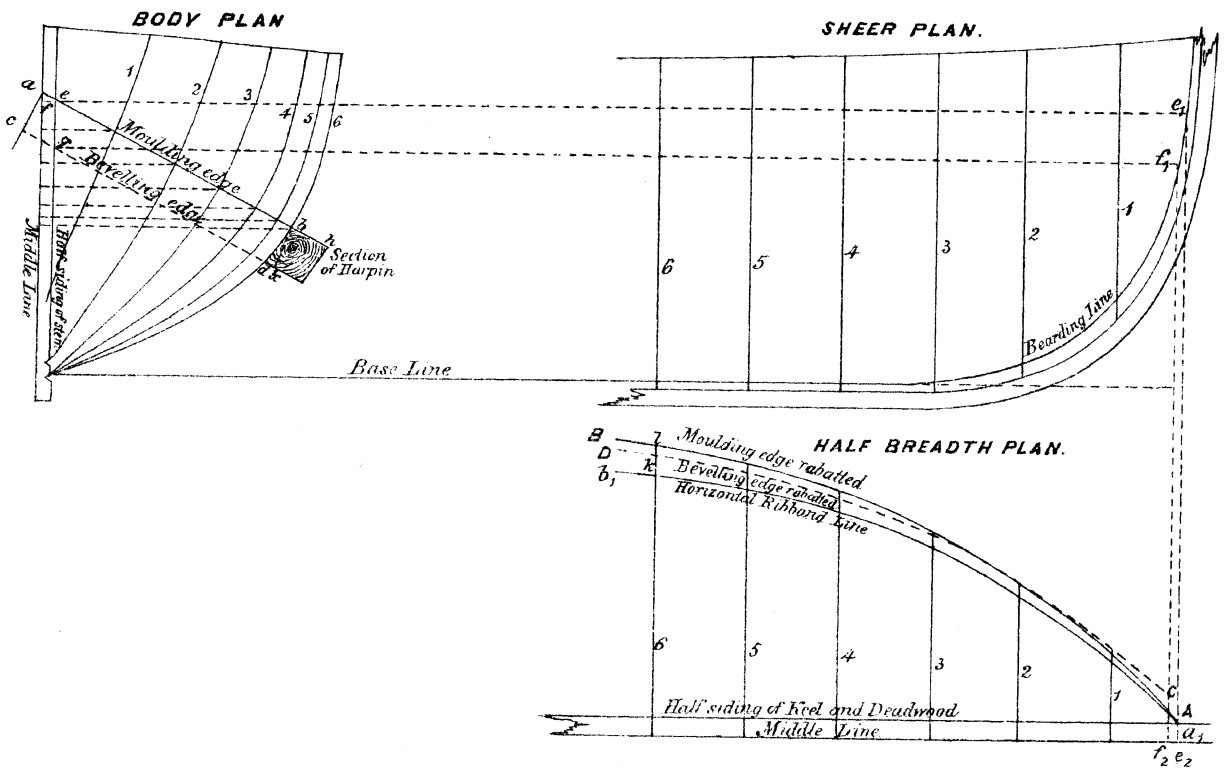

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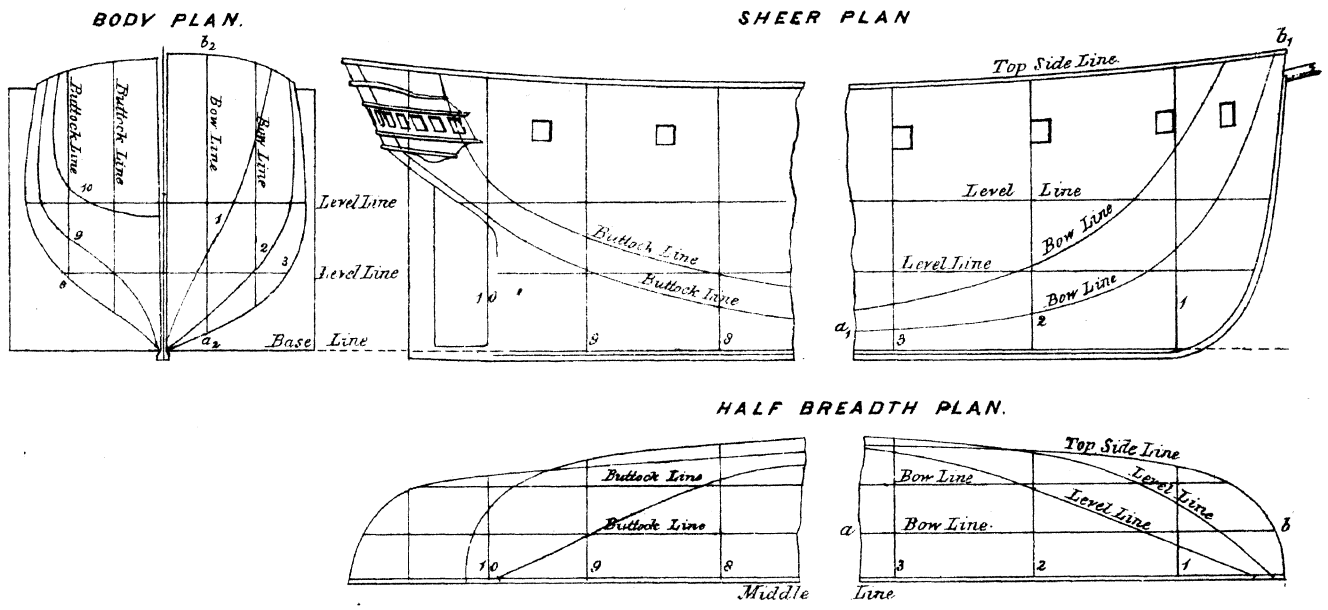

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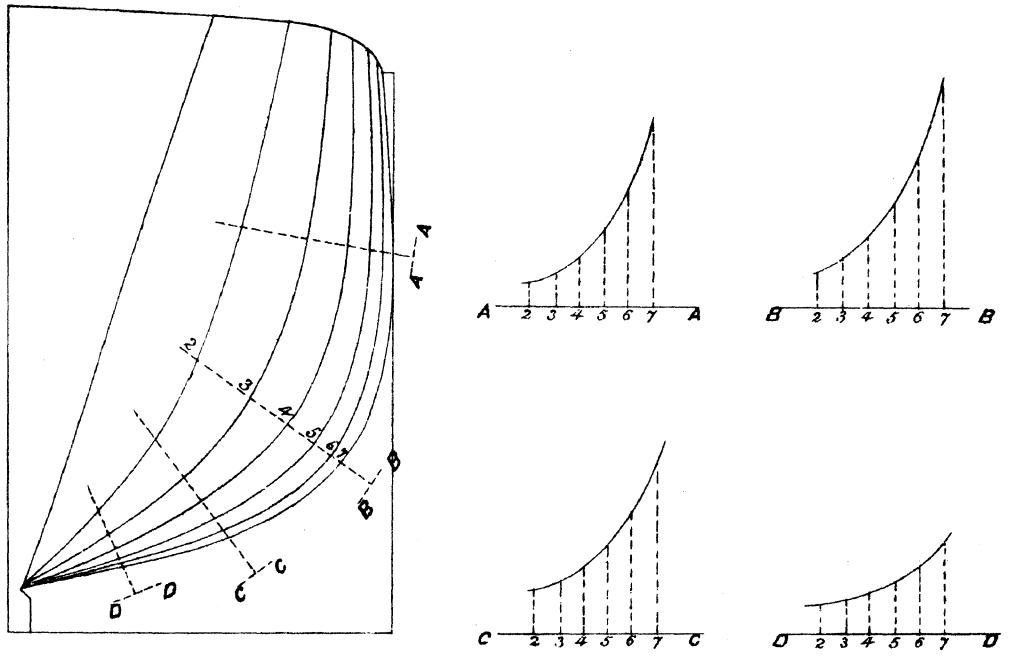

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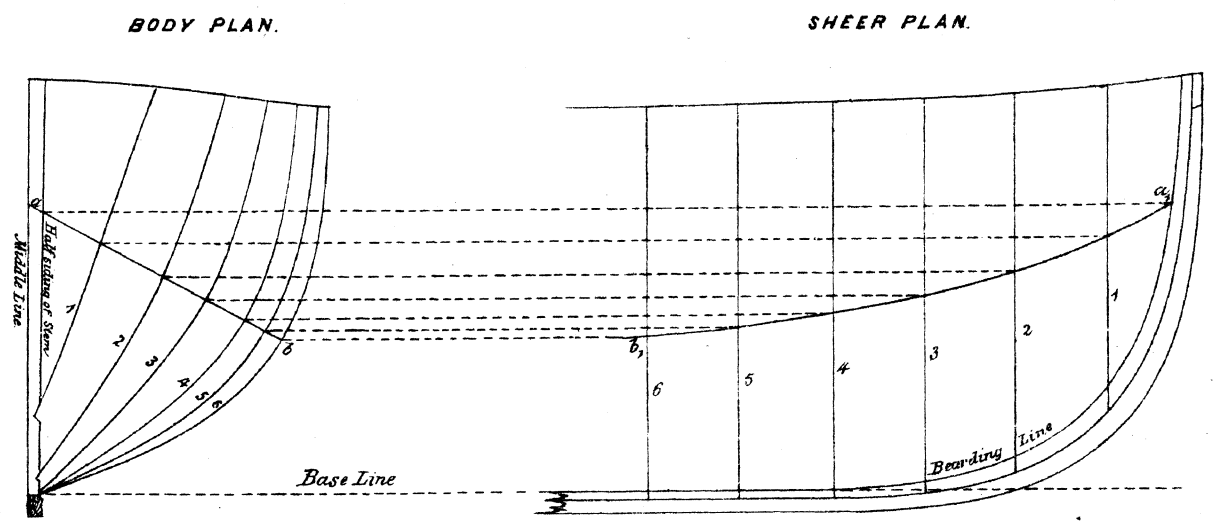


Plate IX

PORTION OF BODY PLAN.

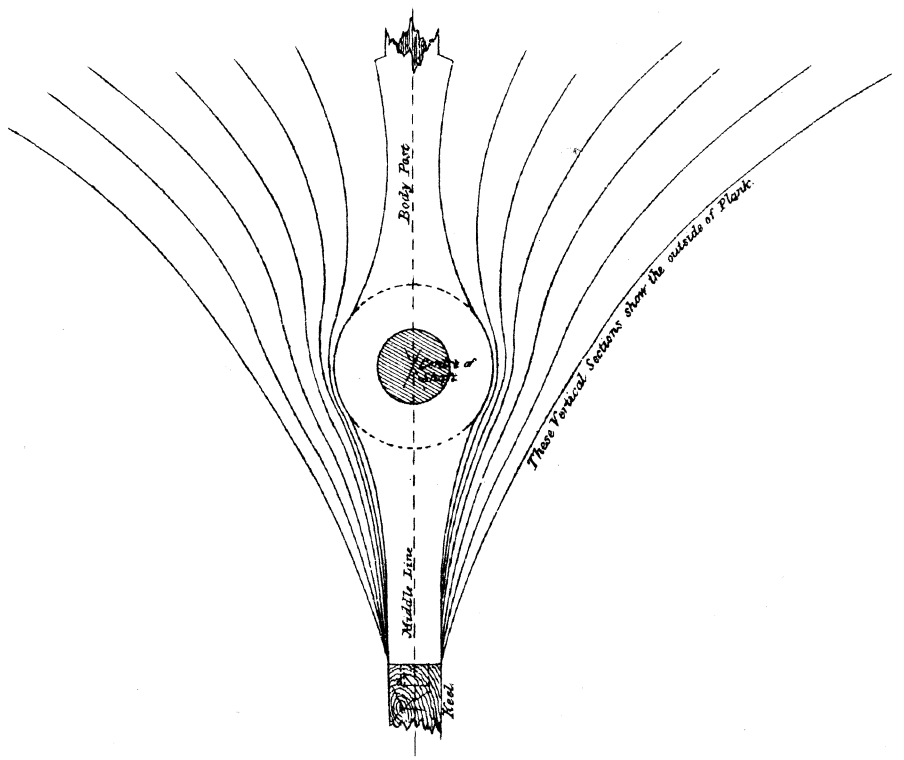


Plate X

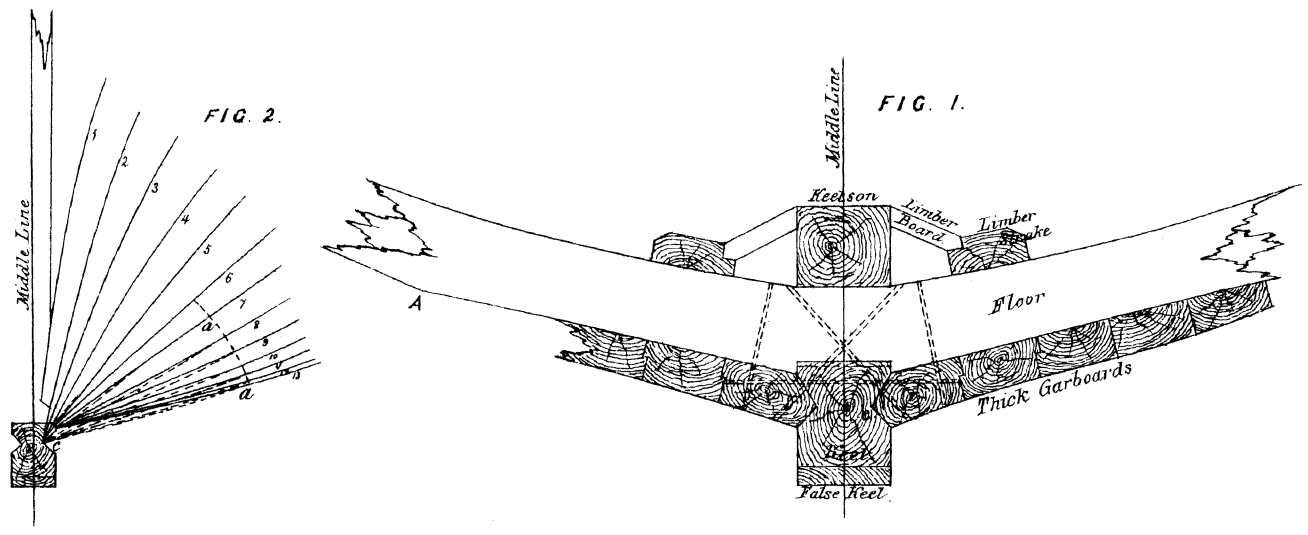


Plate XI

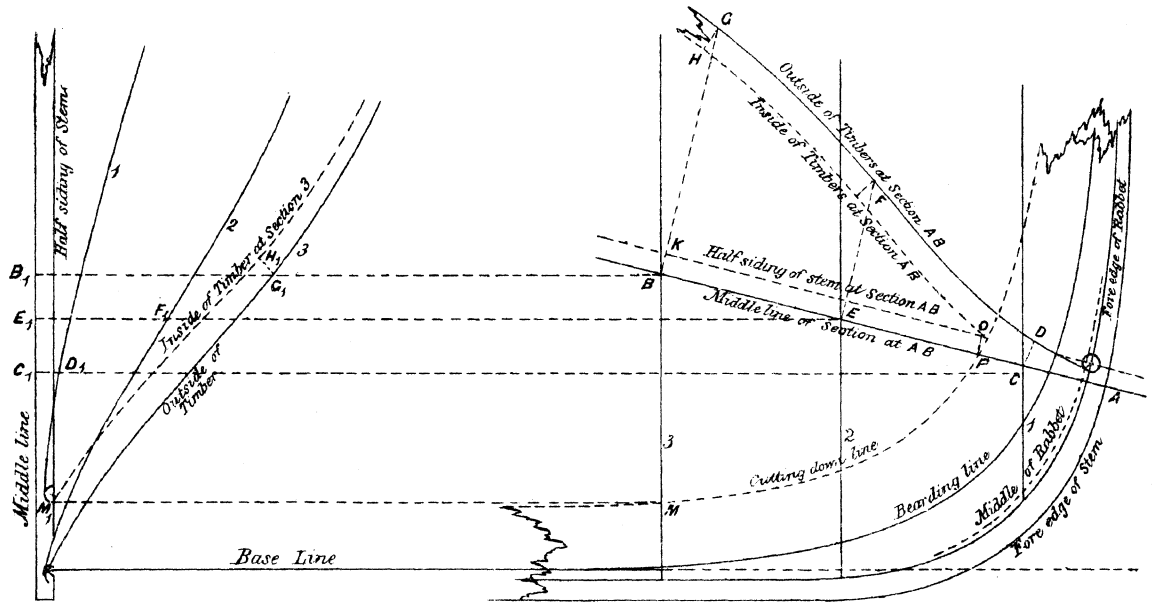


FIG. 1

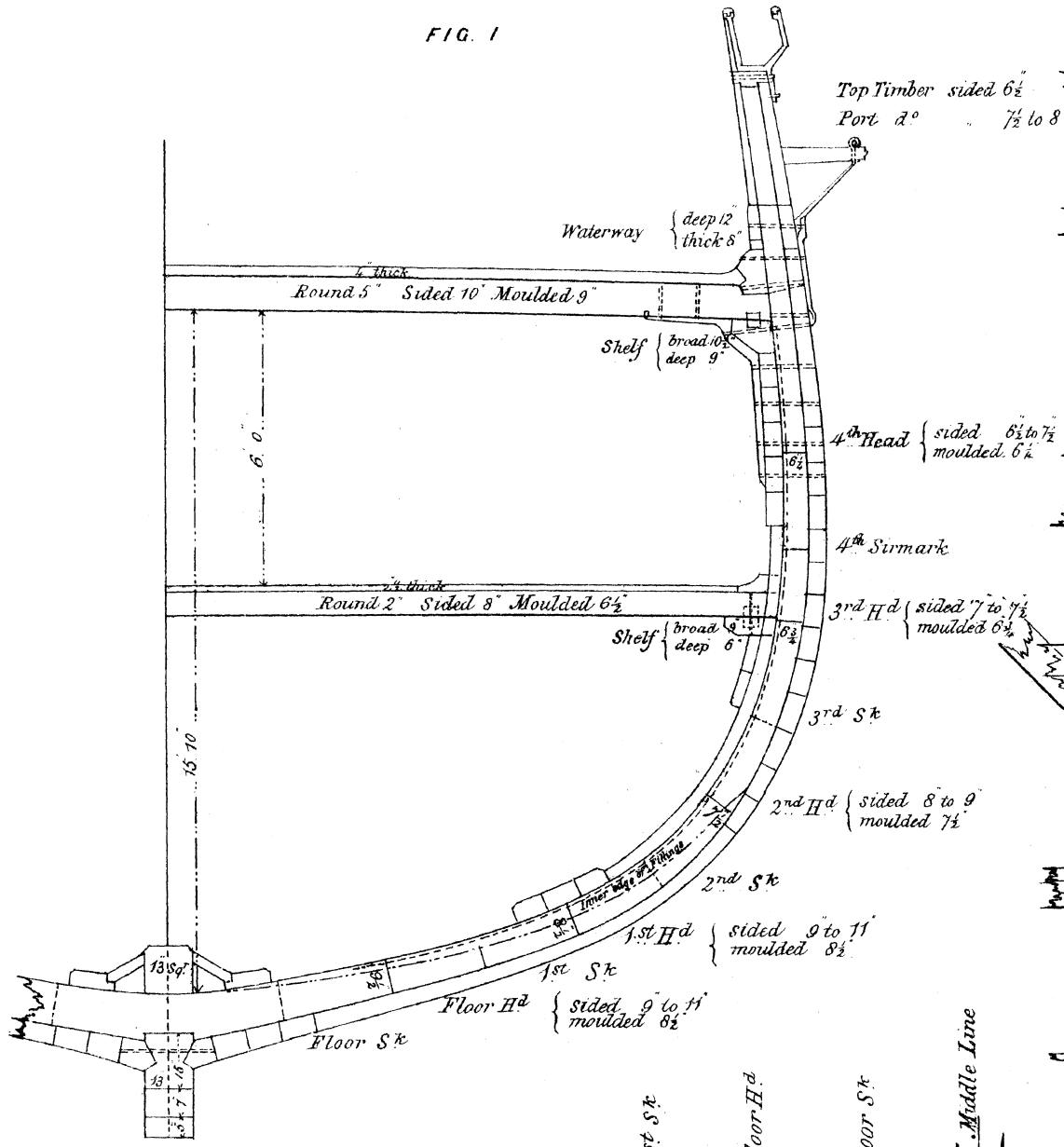

Top Timber sided 6½"
Port d° 7½ to 8"
Waterway { deep 12" thick 8"
½ thick
Round 5" Sided 10" Moulded 9"
Shelf { broad 10½" deep 9"
6' 0"
4th Head { sided 6½ to 7½ moulded 6½
4th Strmark
½ thick
Round 2" Sided 8" Moulded 6½"
Shelf { broad 9" deep 6"
3rd Hd { sided 7" to 7½ moulded 6½
3rd Stk
15' 10"
2nd Hd { sided 8 to 9 moulded 7½
2nd Stk
Inner edge of Fiferail
1st Hd { sided 9 to 11 moulded 8½
1st Stk
Floor Hd { sided 9 to 11 moulded 8½
Floor Stk

FIG 2.

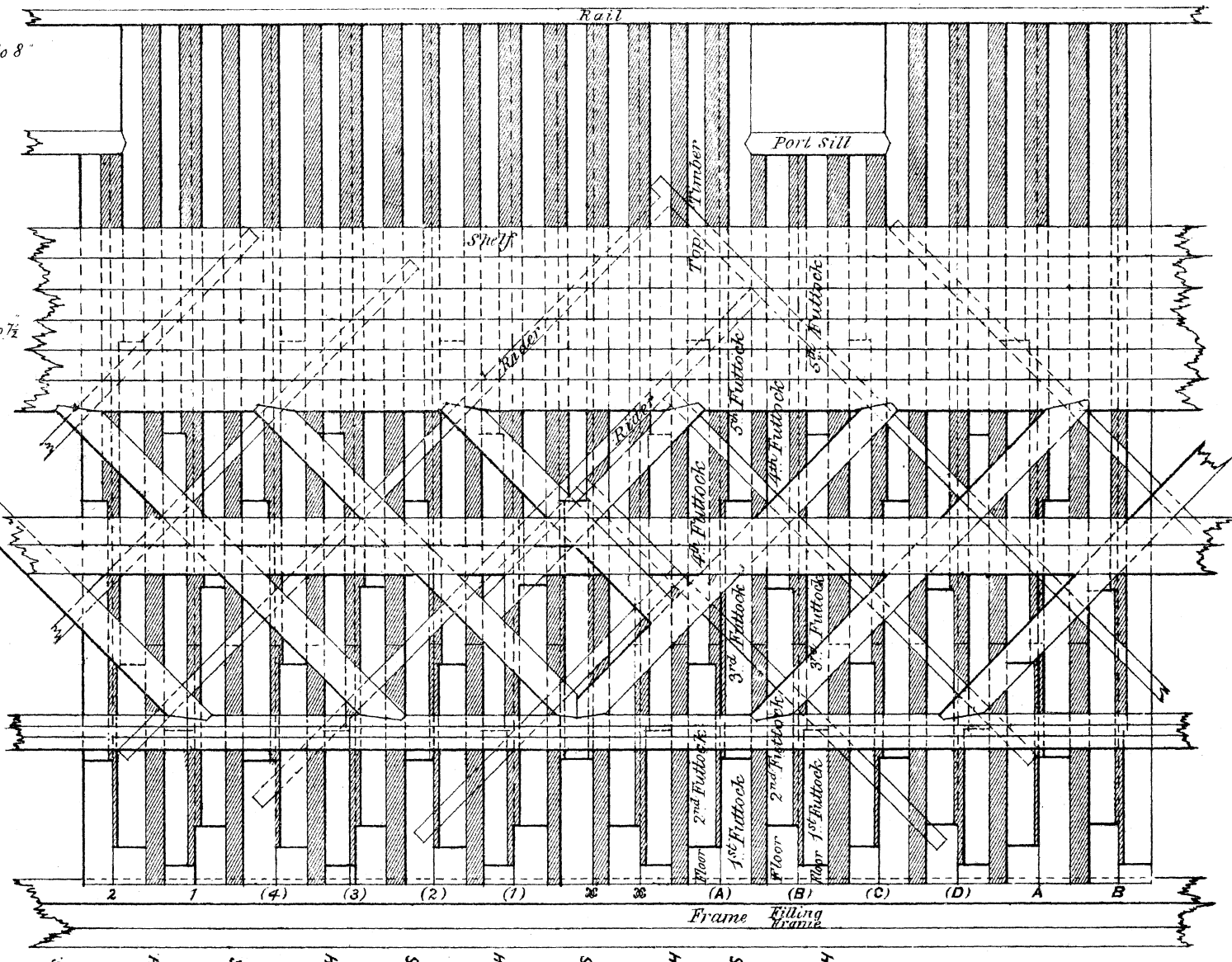


FIG. 3.

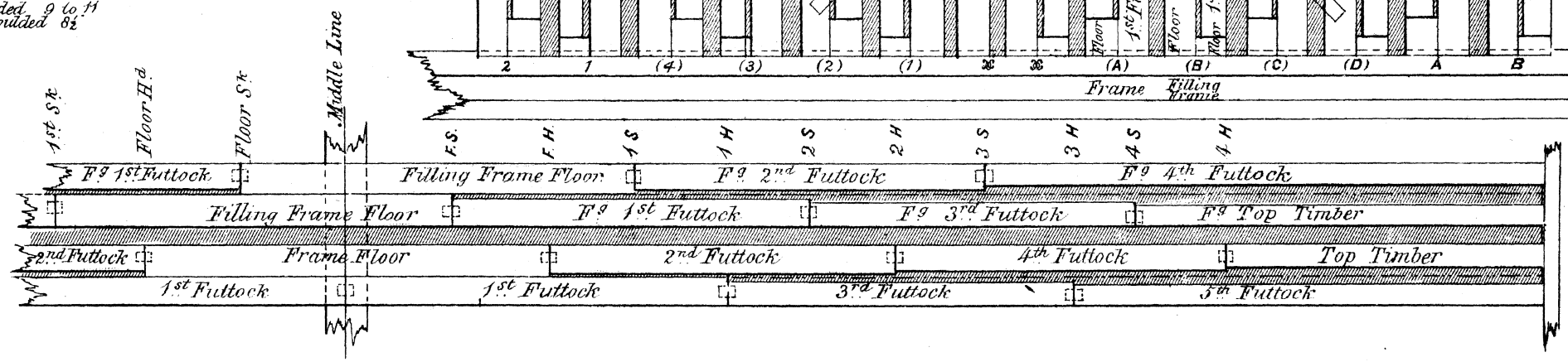


Plate XIII

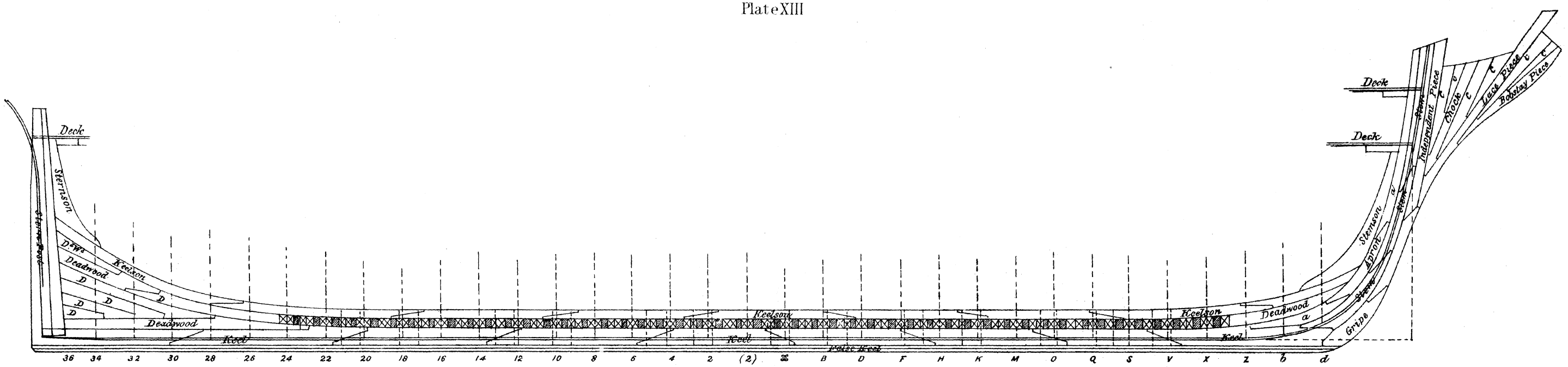


Plate XIV

FIG. 1.

KEEL BATTEN OR ROOM & SPACE BATTEN.

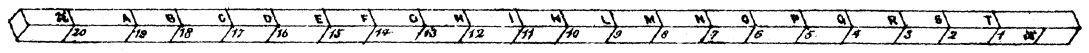


FIG. 2.

RIBBAND BATTEN OR STATION STAFF.

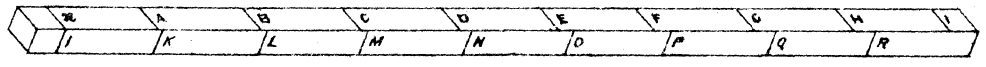


FIG. 3.

HALF BREADTH STAFF.

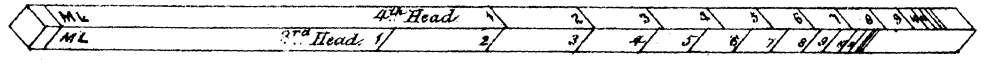


FIG. 4.

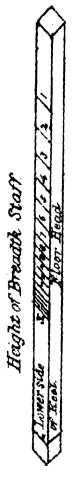
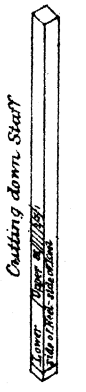
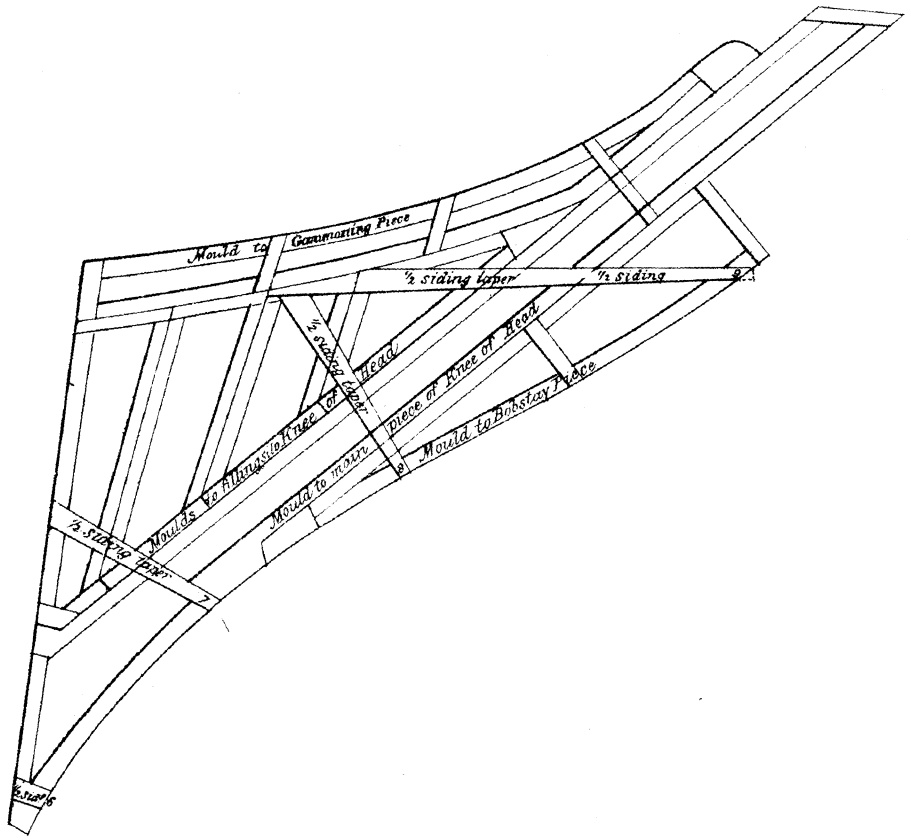
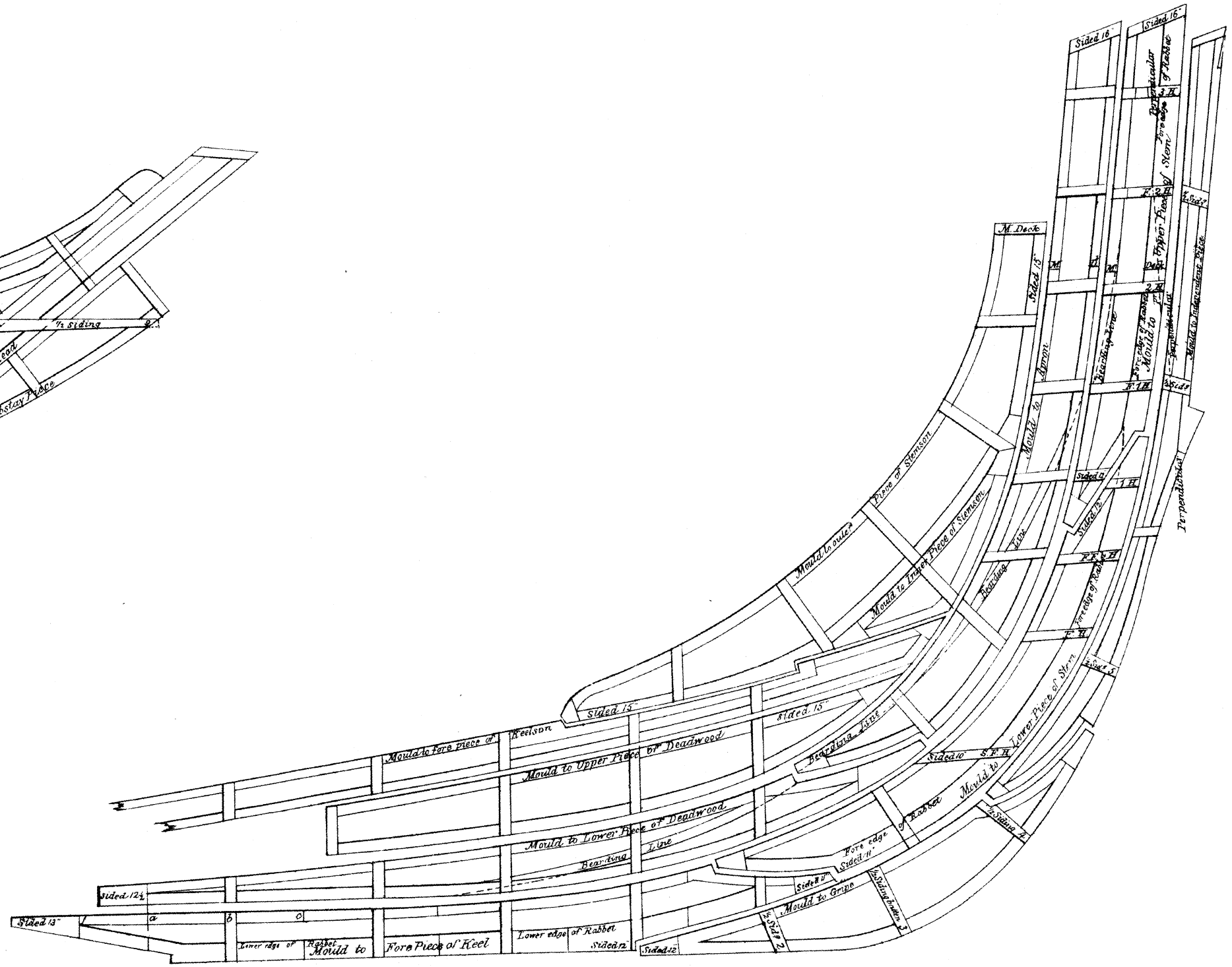


FIG. 5.

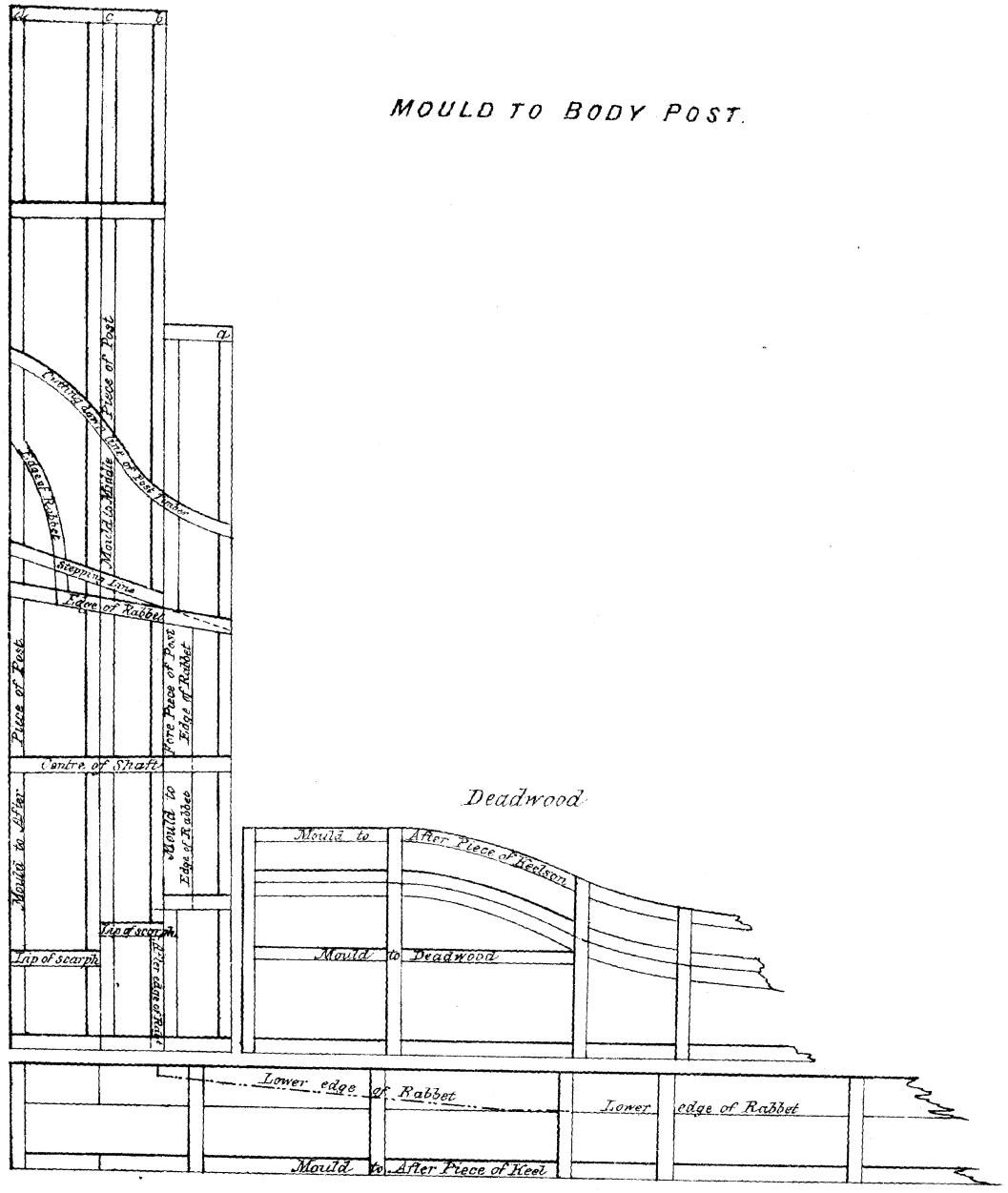


A S A


Mould to Gunwaling Piece
½ siding taper
½ siding
½ siding taper
Mould to Fore Piece of Knee of Head
Mould to Fore Piece of Knee of Head
Mould to Breasthook Piece
½ siding taper
Moulds to Athwartship Knee of Head
Sided 16"


Sided 16"
Sided 16"
Perpendicular of Rabbet
M. Decks
Sided 18"
Moulds to Apron
Moulds to Fore Piece of Stemson
Moulds to Inner Piece of Stemson
Moulds to Transom
Sided 12"
Sided 12"
Moulds to Transom
Moulds to Lower Piece of Stem
Moulds to Lower Piece of Stem
Moulds to Inner Piece of Stem
Sided 15"
Sided 15"
Mould to Fore Piece of Keelson
Mould to Upper Piece of Deadwood
Mould to Lower Piece of Deadwood
Breadth Line
Rabbet Line
Sided 12½"
Sided 13"
Lower edge of Rabbet
Mould to Fore Piece of Keel
Lower edge of Rabbet
Sided 12"
Sided 12"
Fore edge of Sided 11"
Sided 11"
Mould to Gripe
½ Siding timbers
½ Sided 12"

MOULD TO BODY POST.



SECTIONS OF STERN POST at a, b, c, & d.

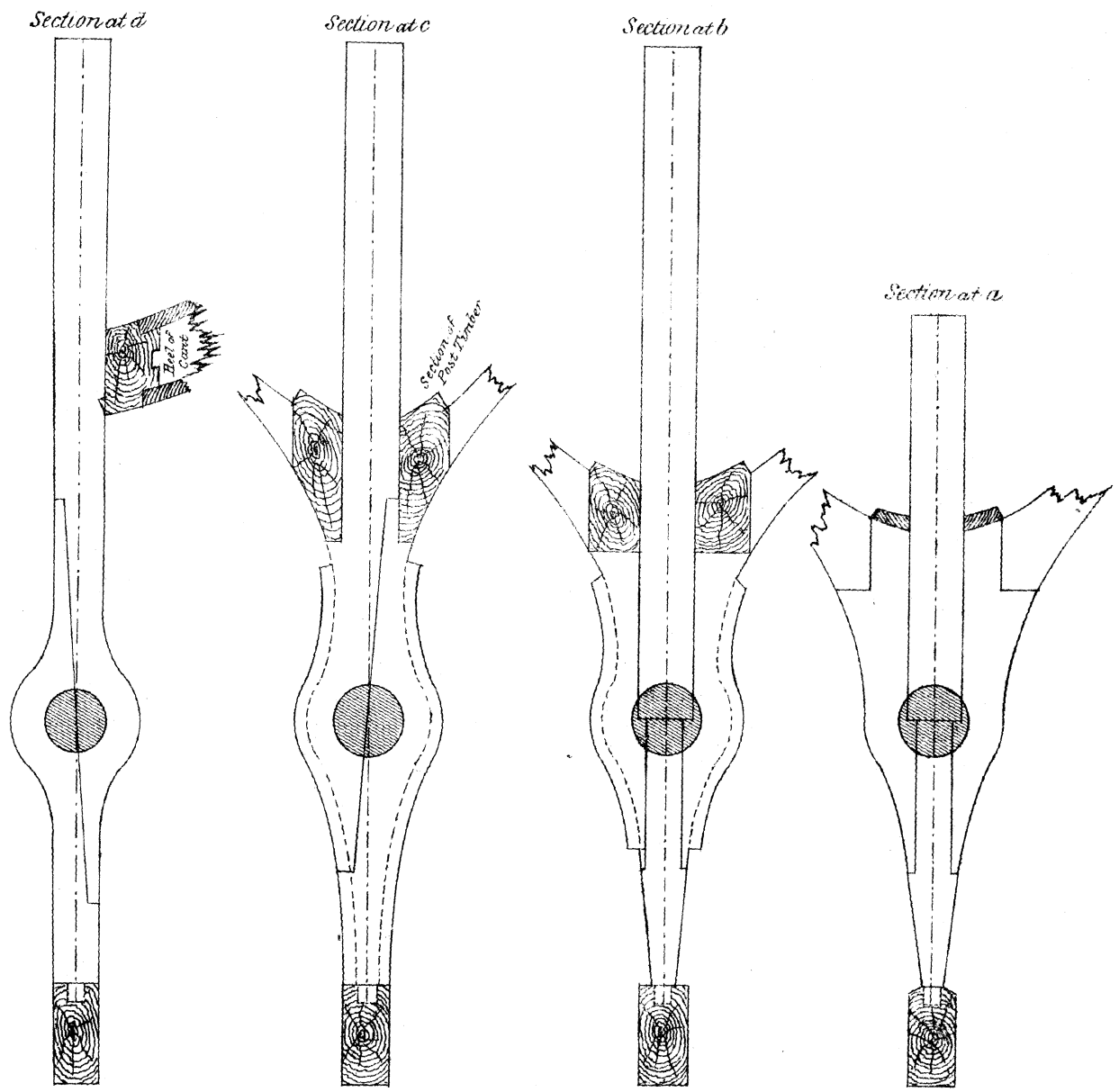


Plate XVII

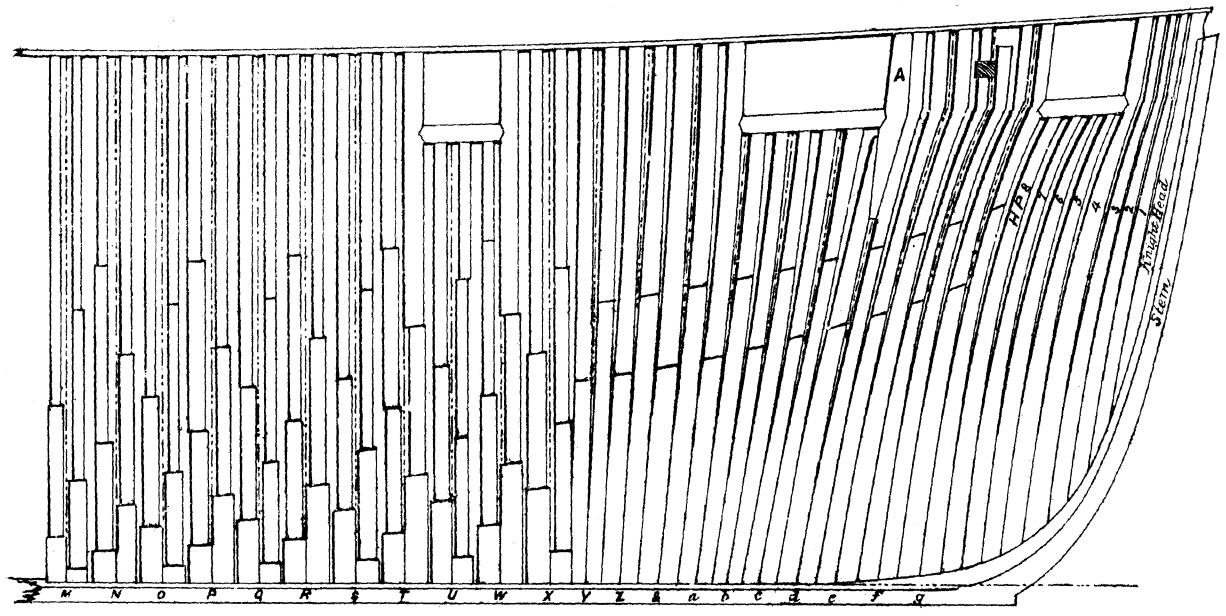


Plate XVIII

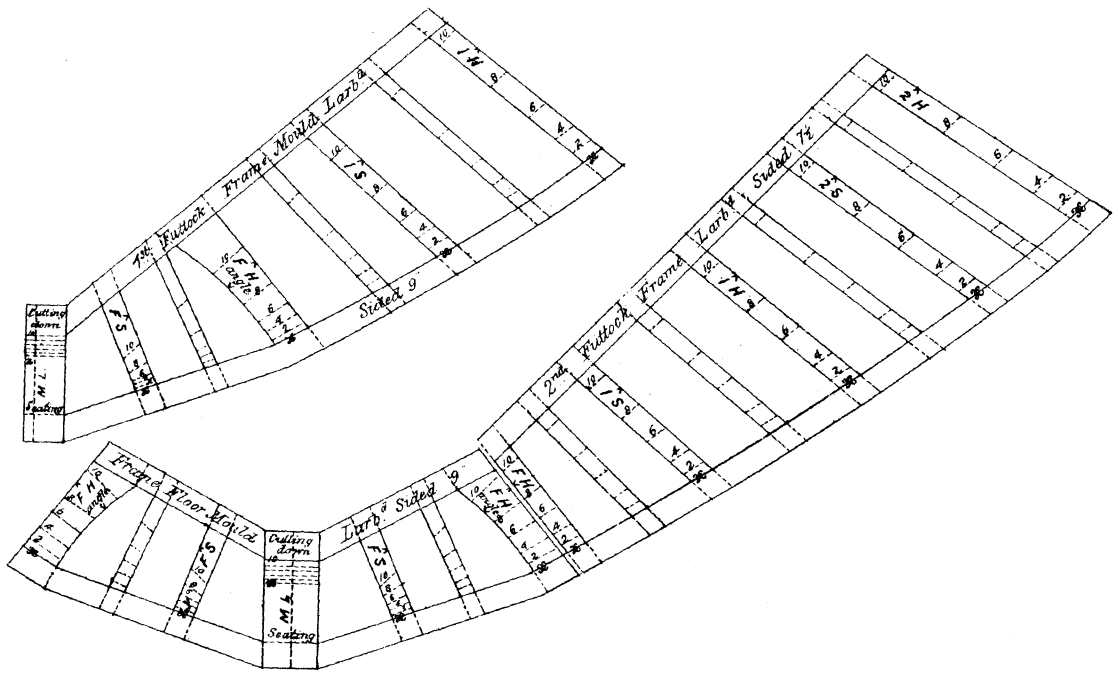


Plate XVIII A

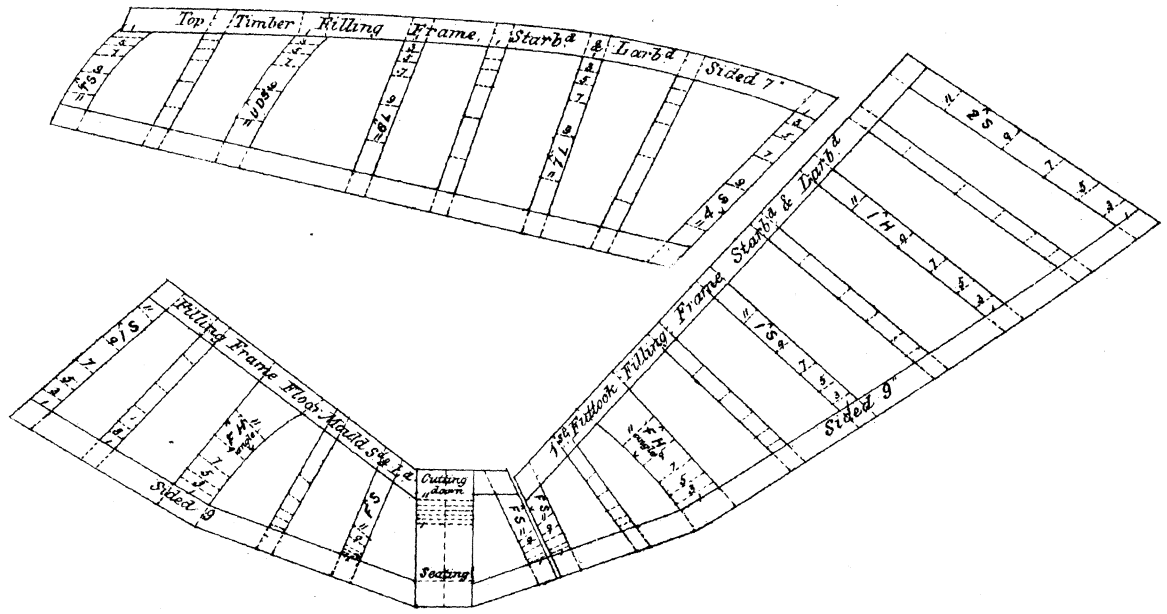


Plate XIX

FIG 1.
BODY PLAN.

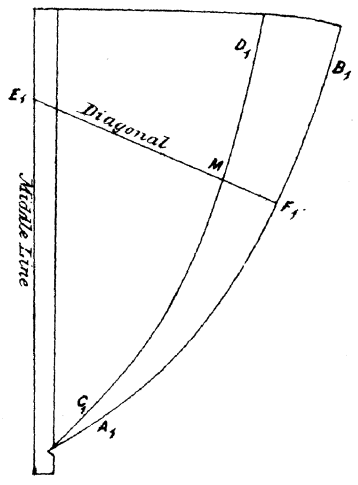


FIG. 2.
HALF BREADTH PLAN.

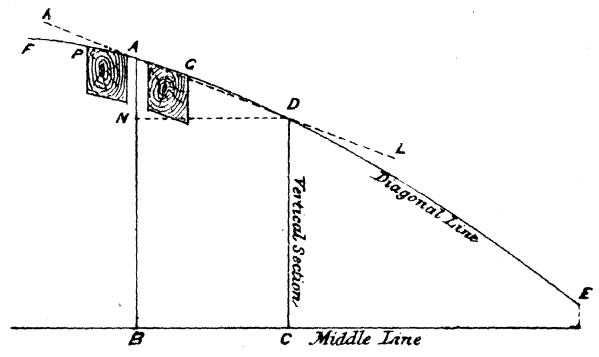


Plate XX

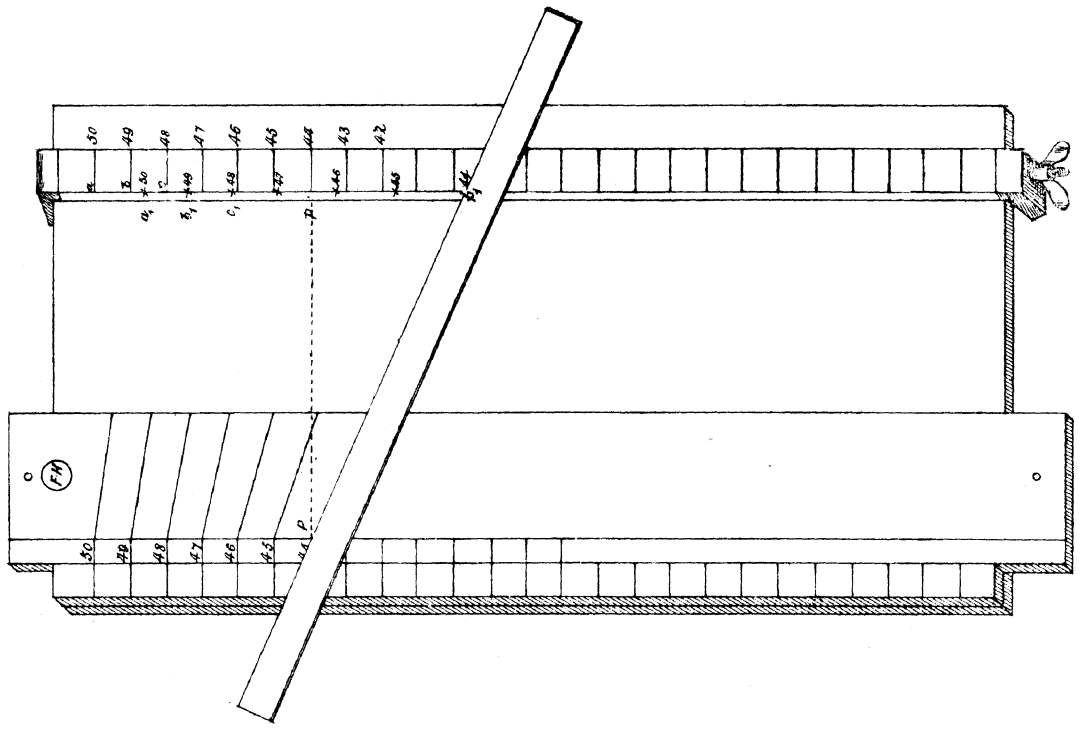


Plate XX A.

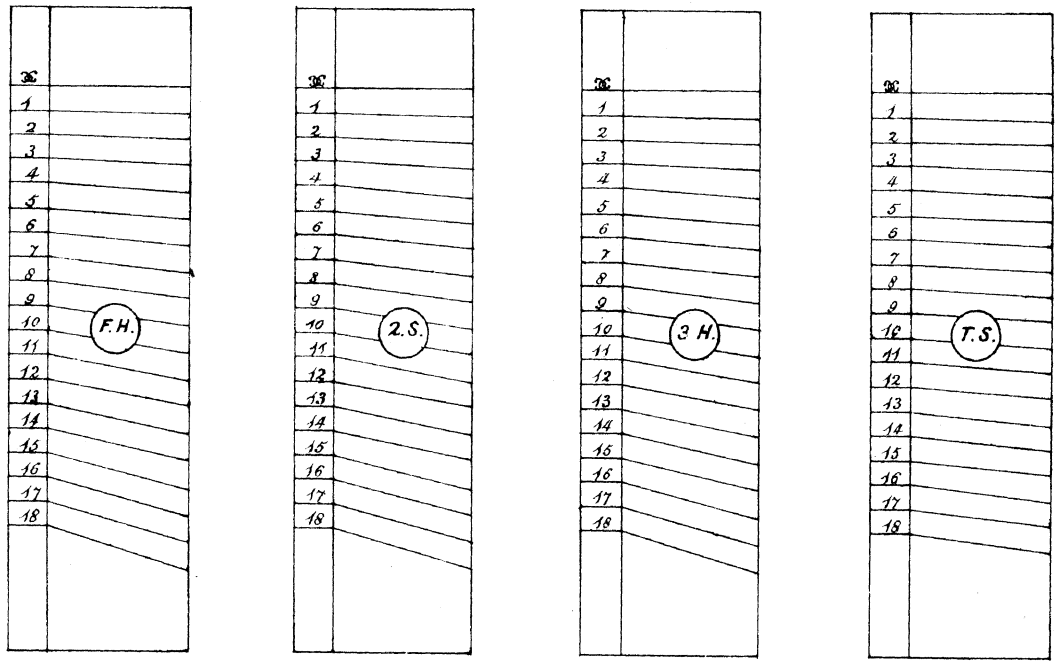


Plate XXI

HALF BREADTH PLAN.

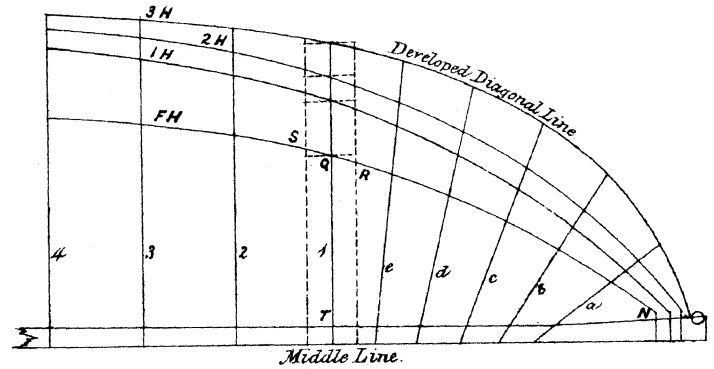


Plate XXII

FIG. 2.

FIG. 1.

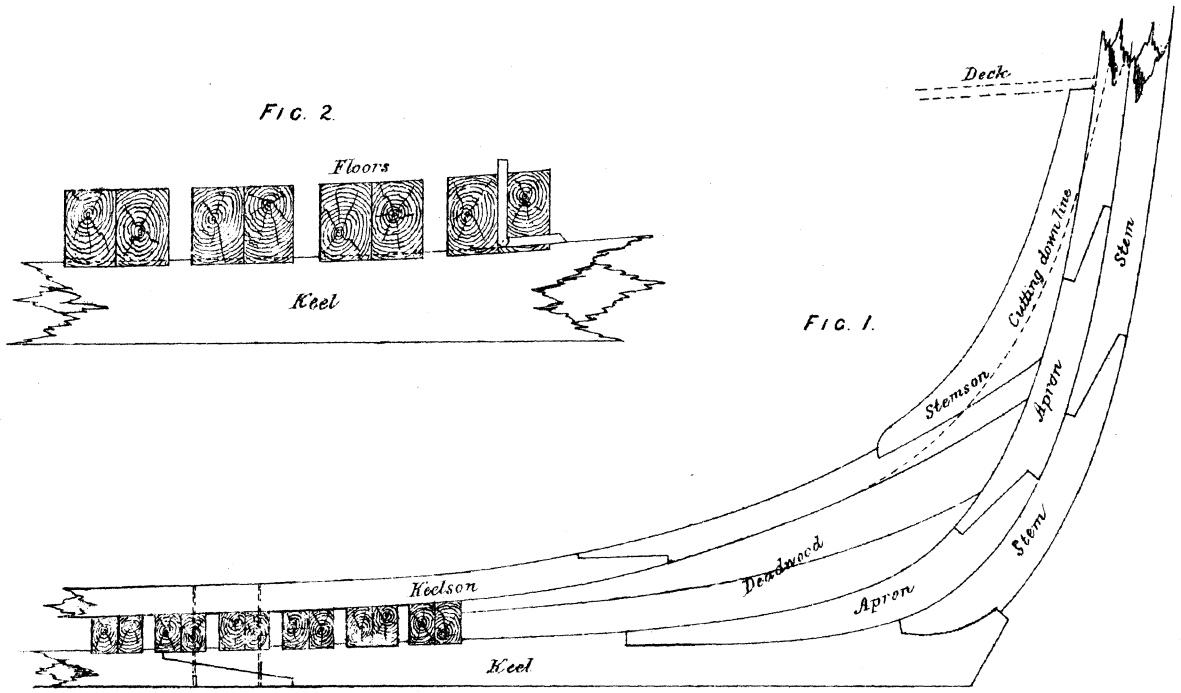


Plate XXIII

FIG. 1.

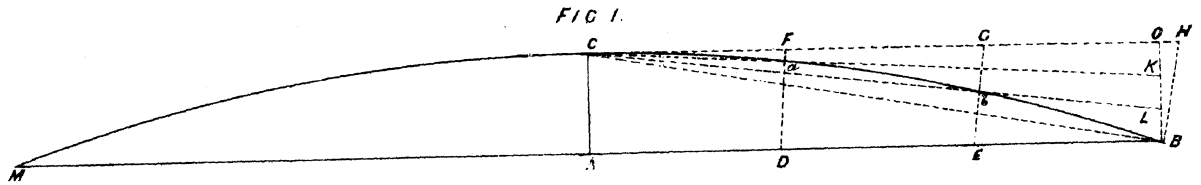


FIG. 2

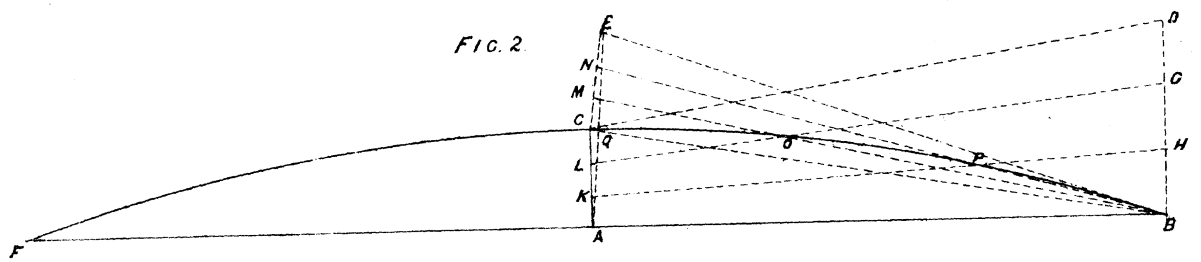
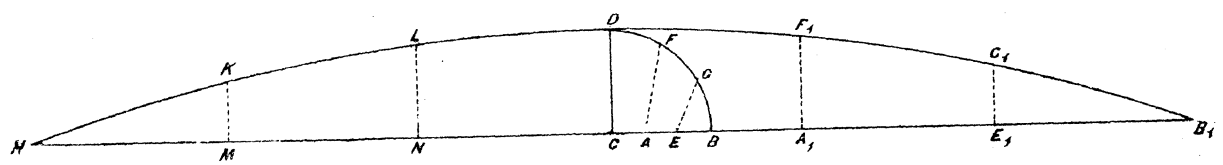


FIG. 3.



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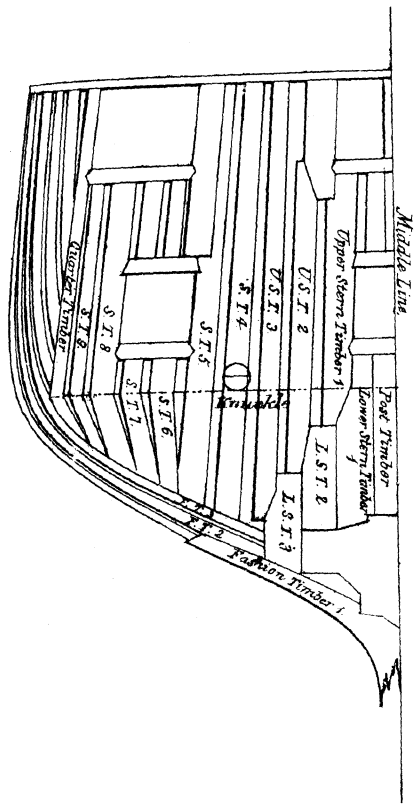


Plate XXV

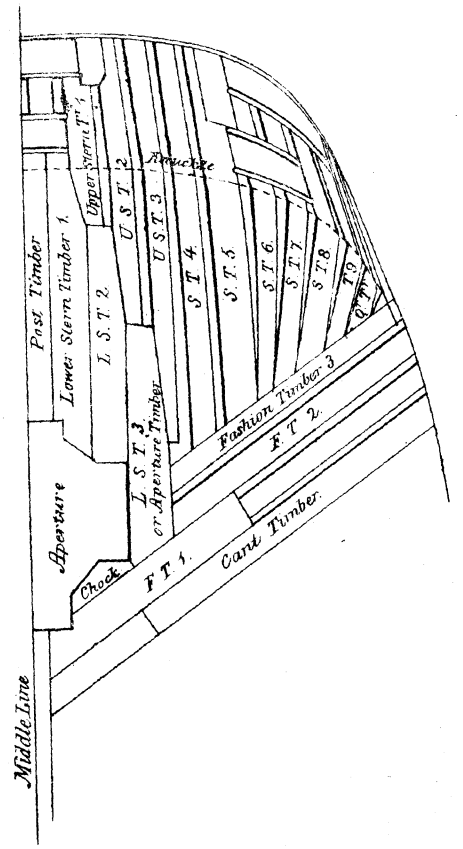


Plate XXVI

FIG. 2.

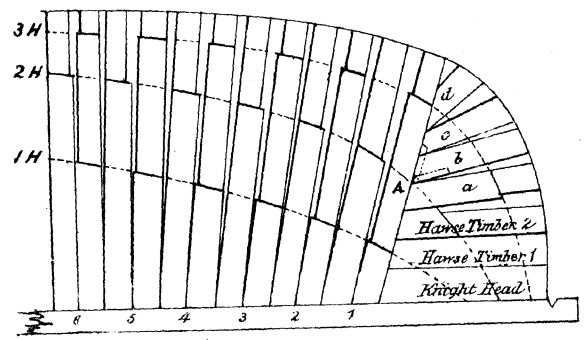
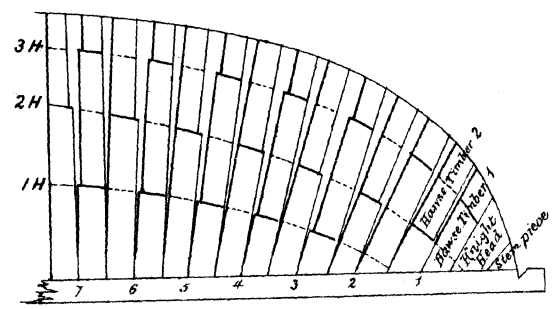


FIG. 1.



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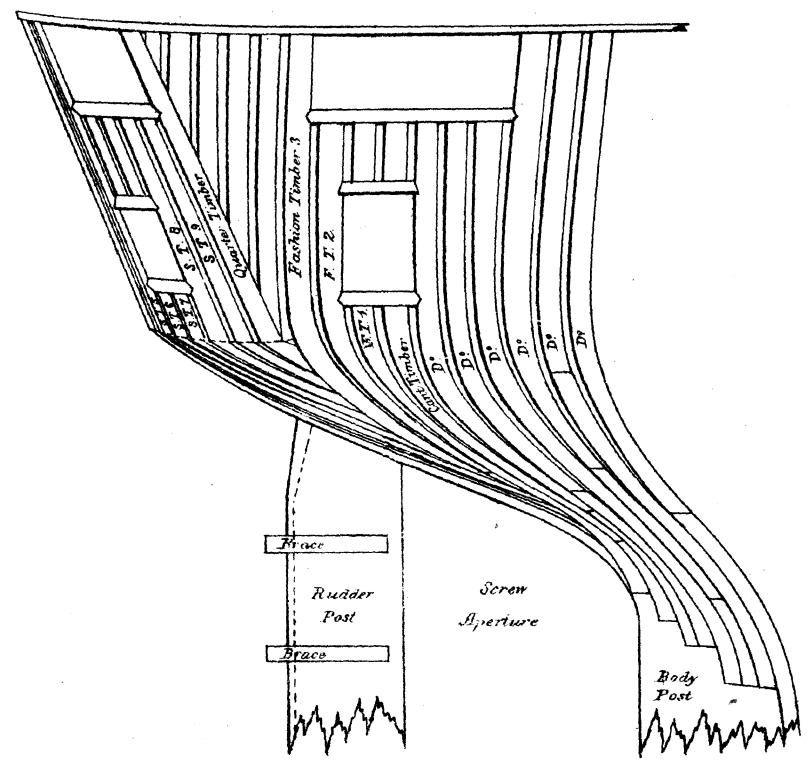

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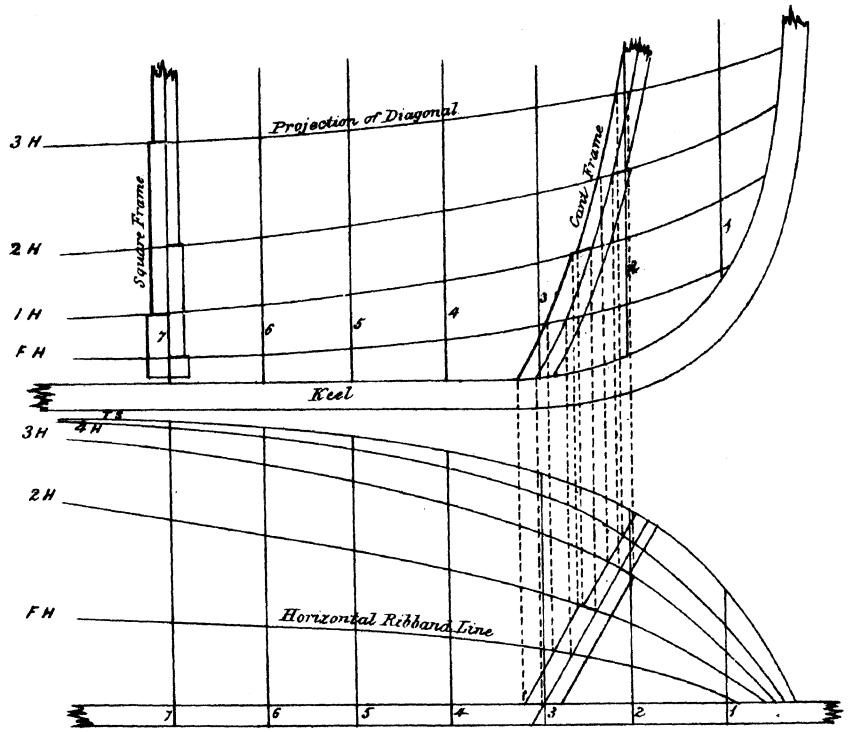

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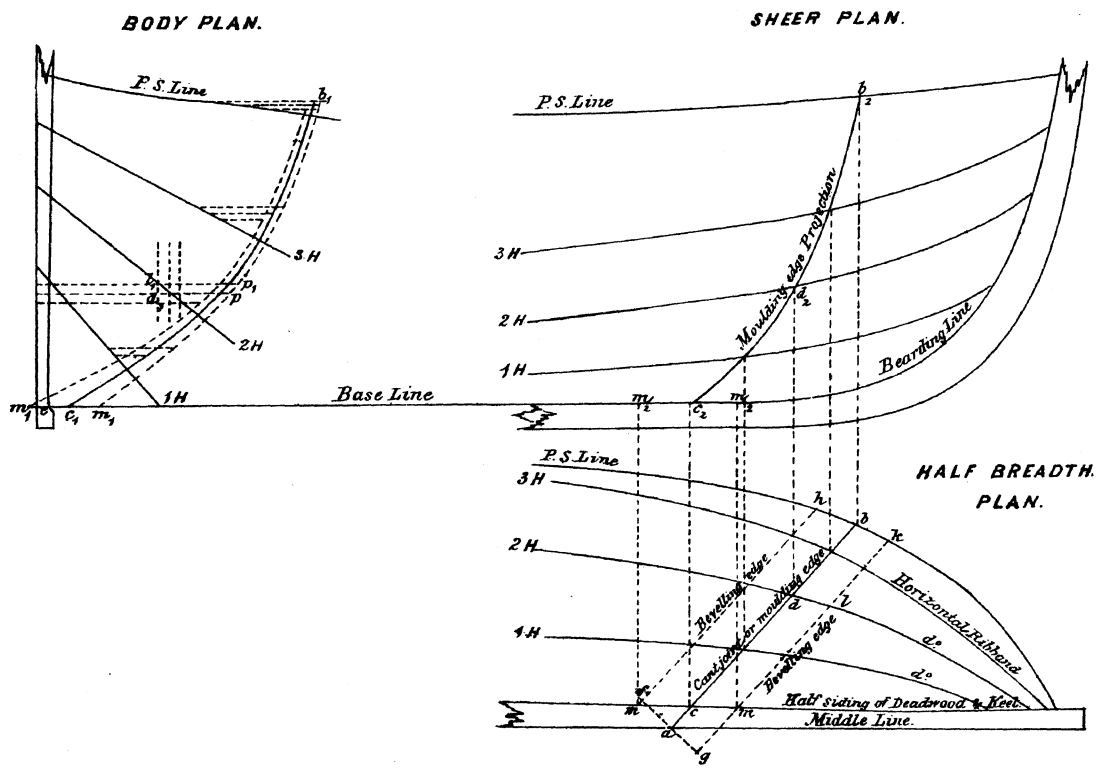
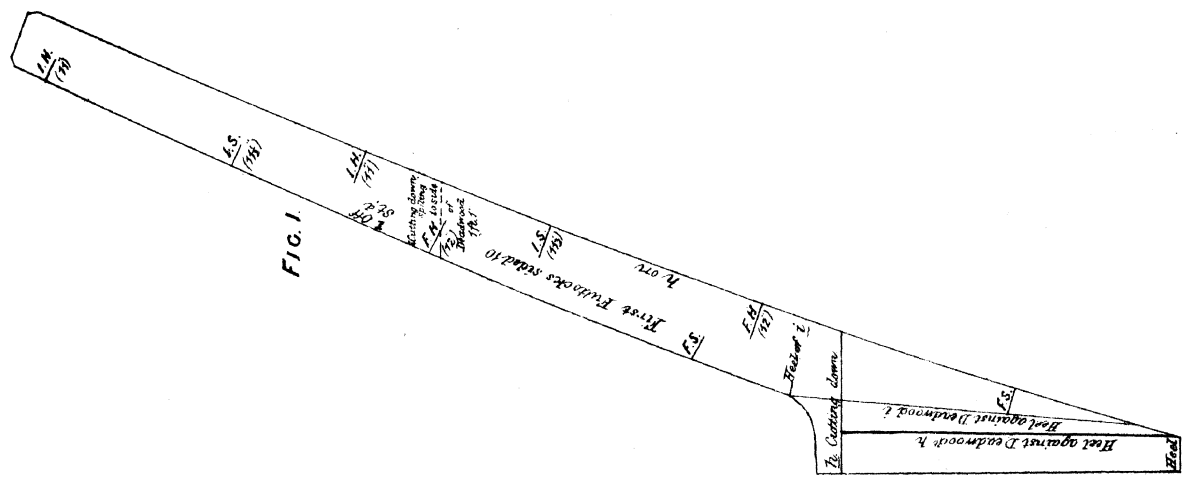


Plate XXX



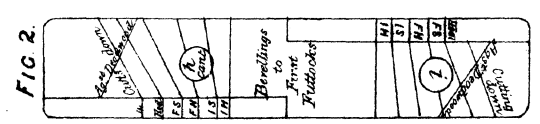


Plate XXXI

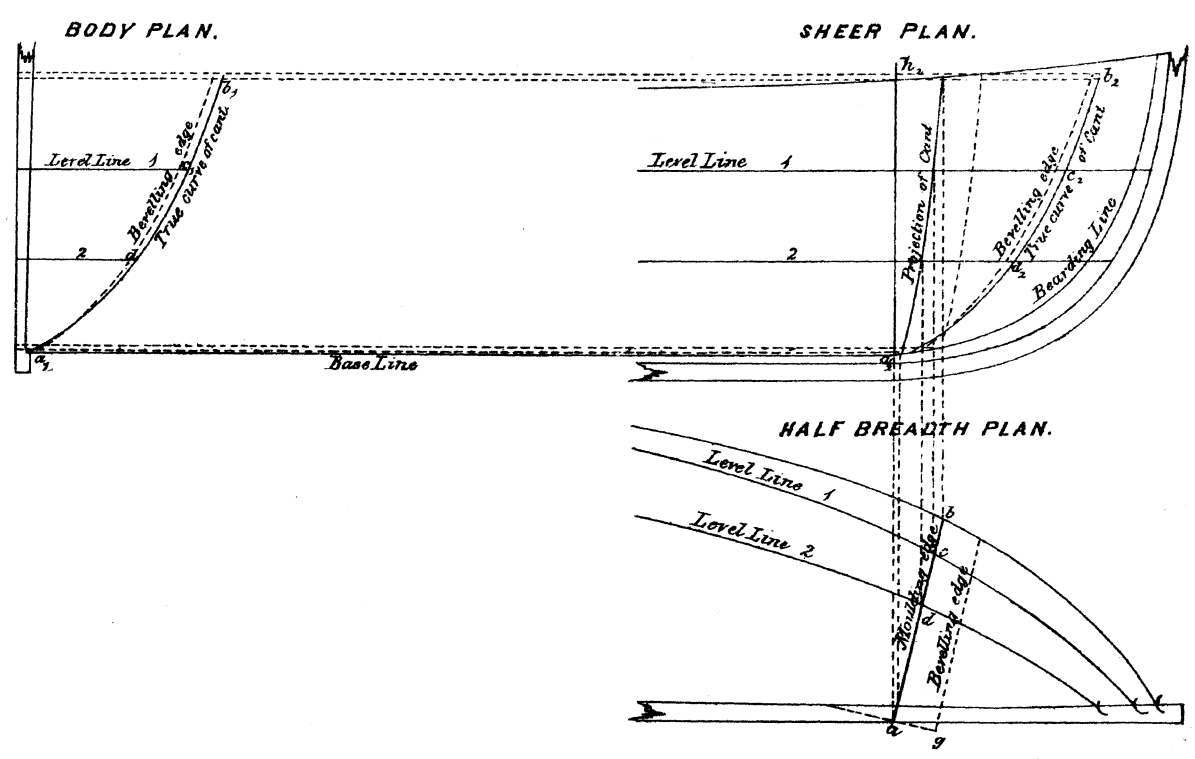


Plate XXXII

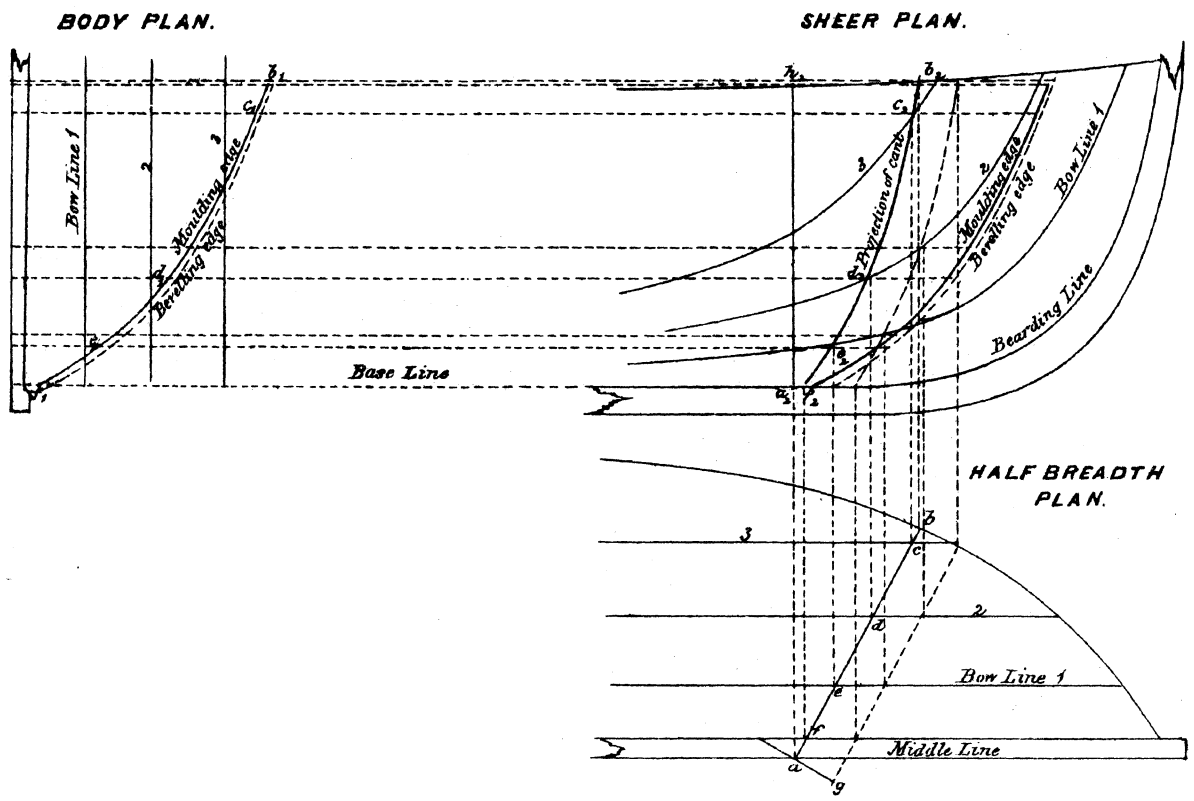


Plate XXXIII

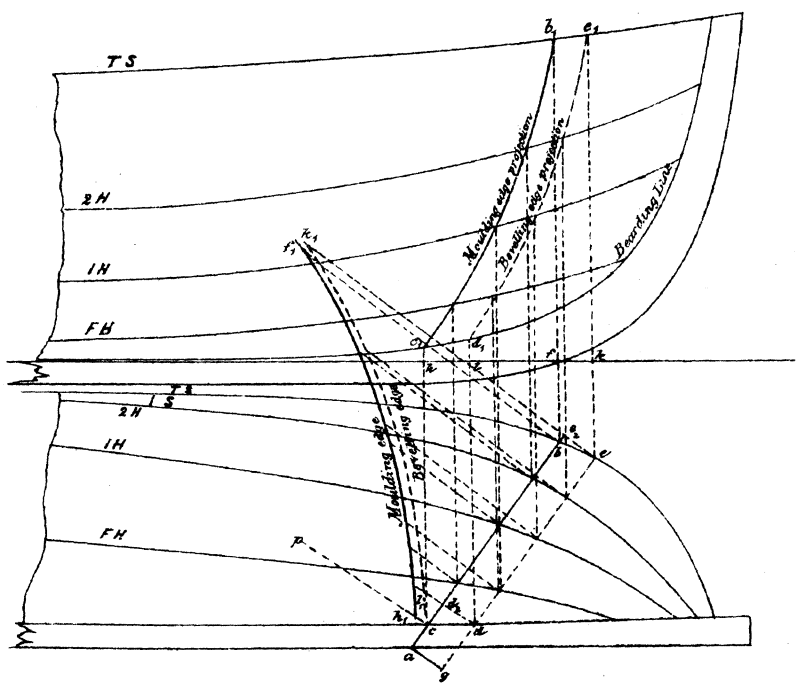
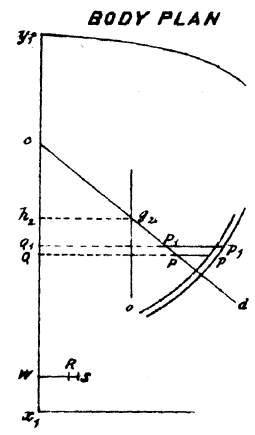


Plate XXXIV



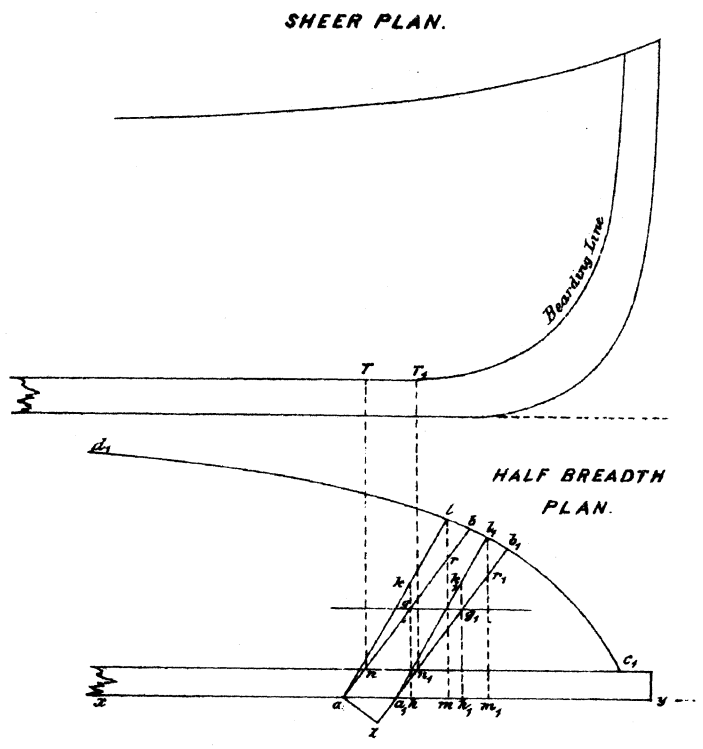


Plate XXXV

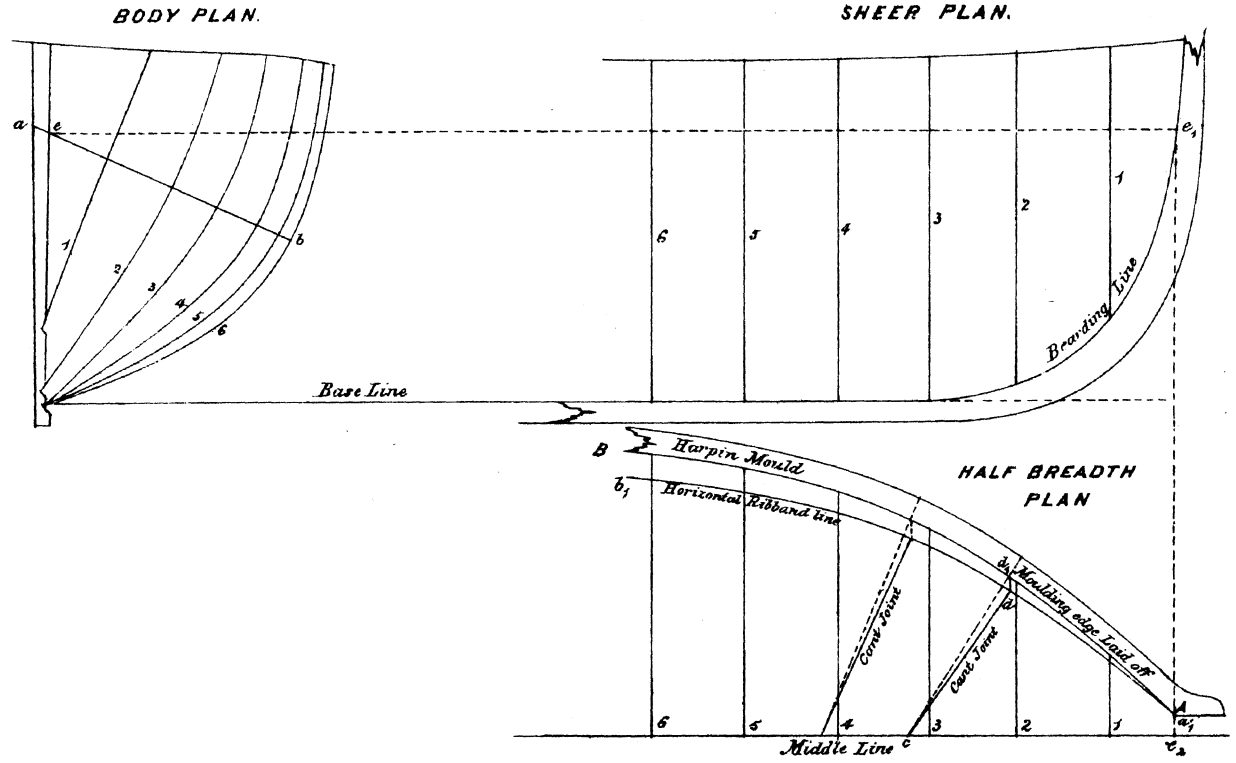


Plate XXXVI

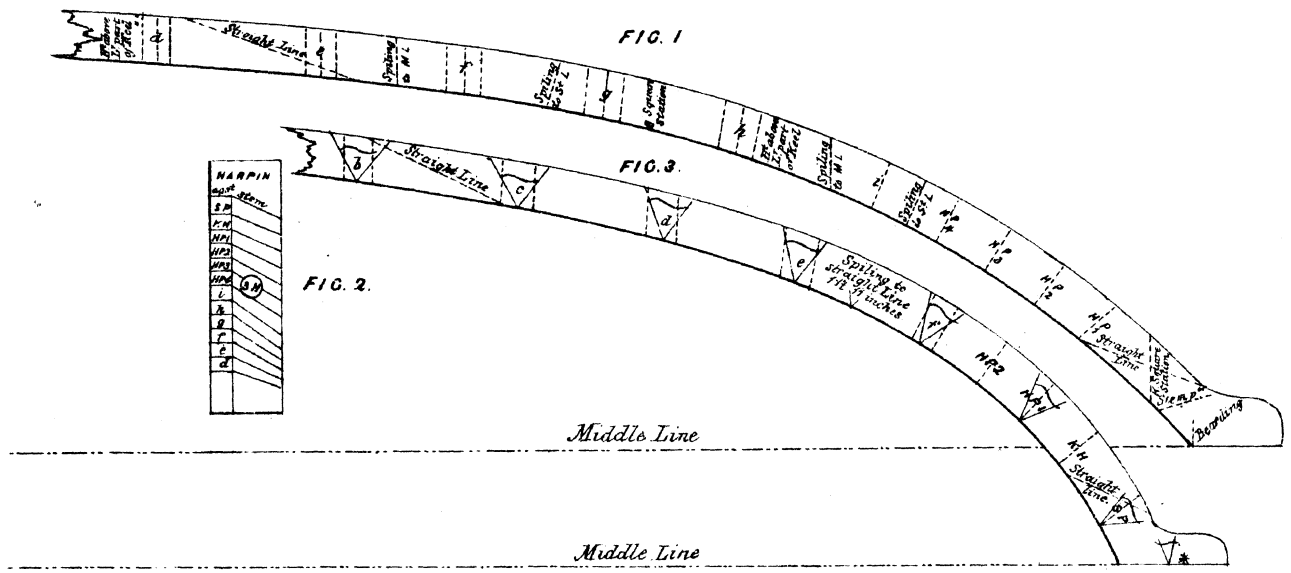


Plate XXXVII

Plate XXXVIII

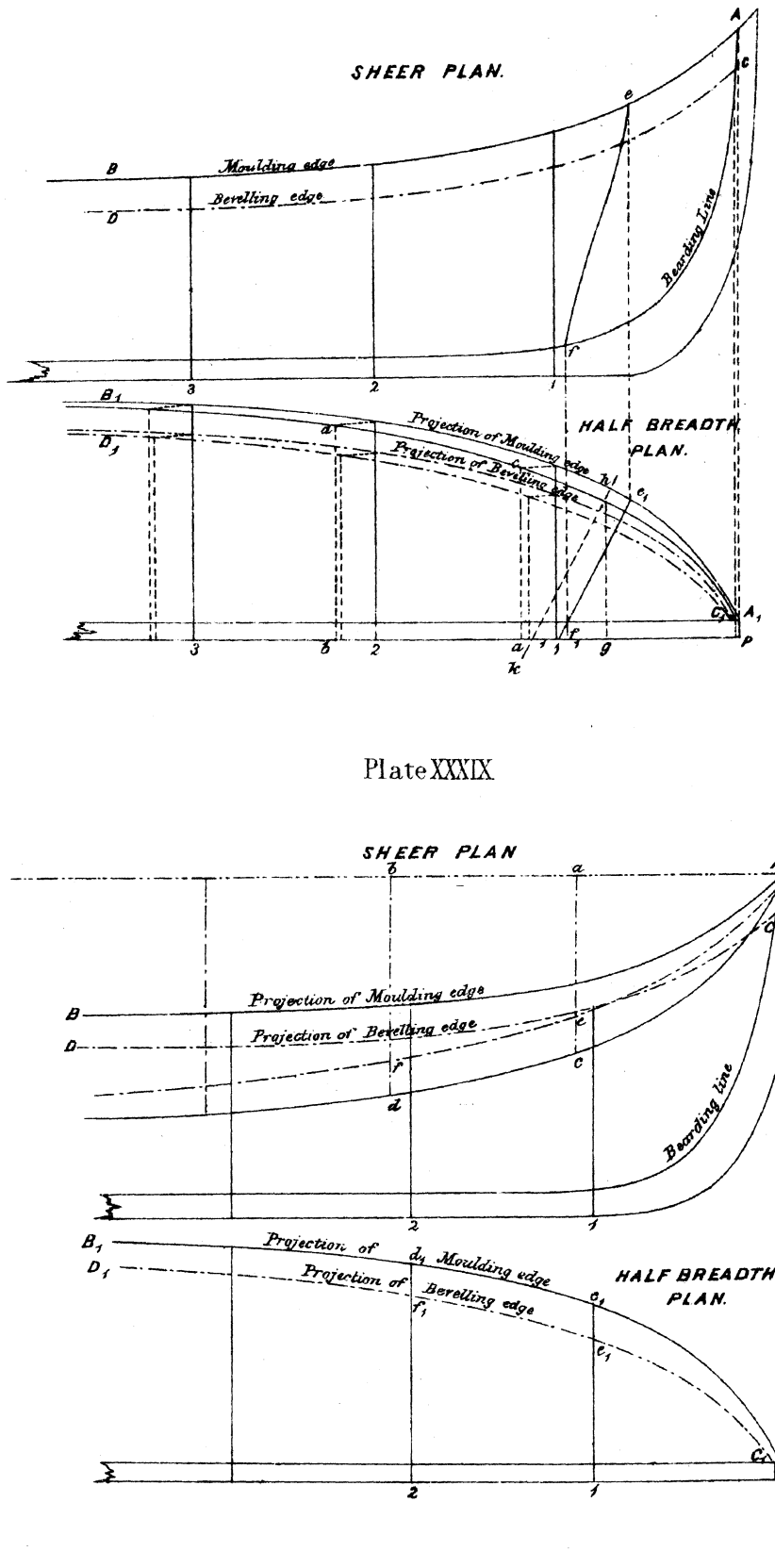


Plate XXXIX

Plate XL

FIG. 2.

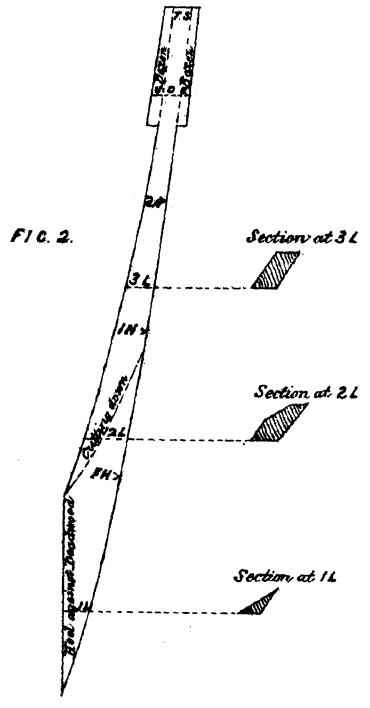


FIG. 1.

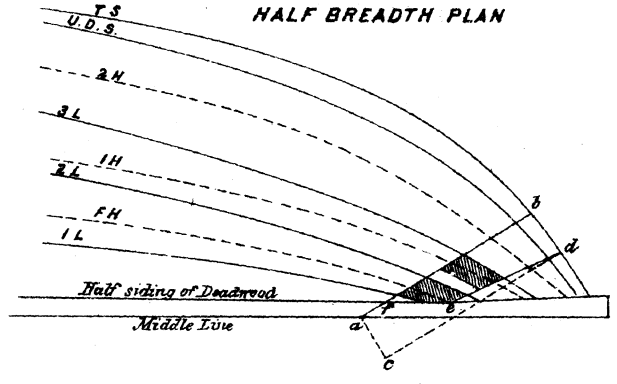
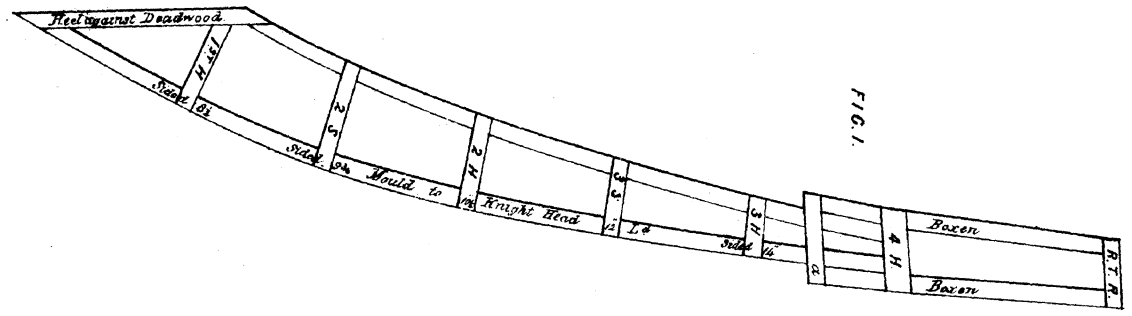


Plate XLI



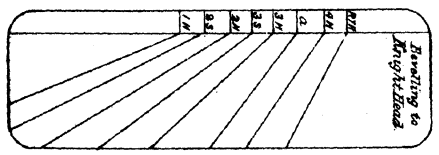
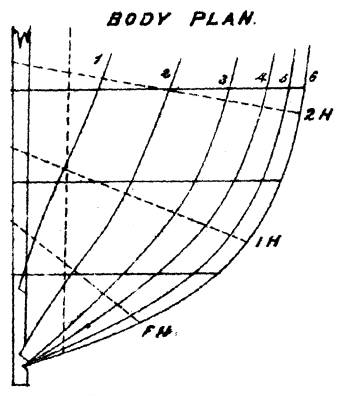


Plate XLII



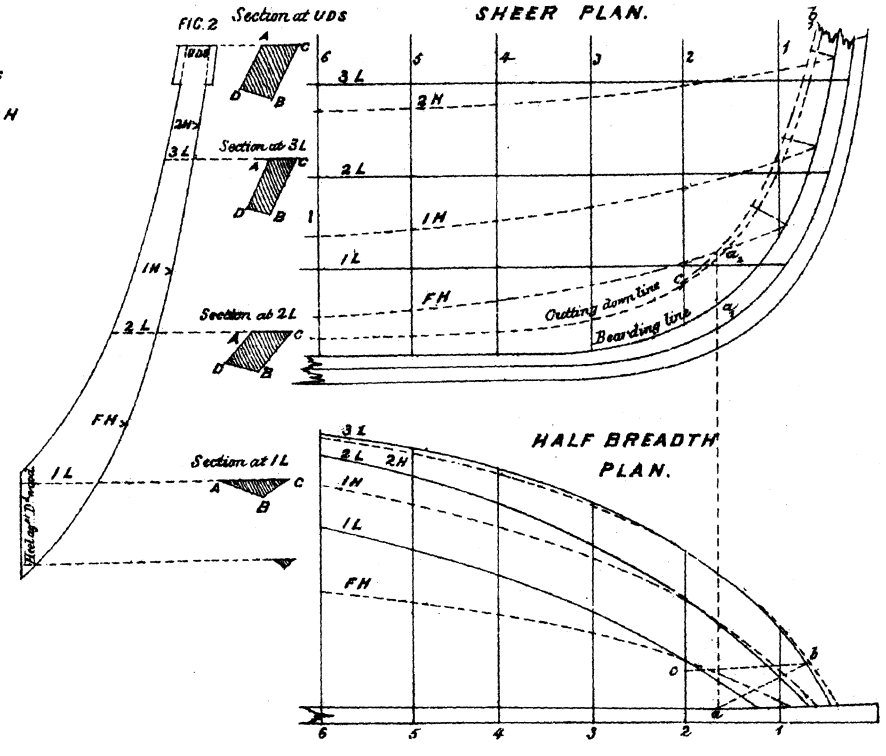
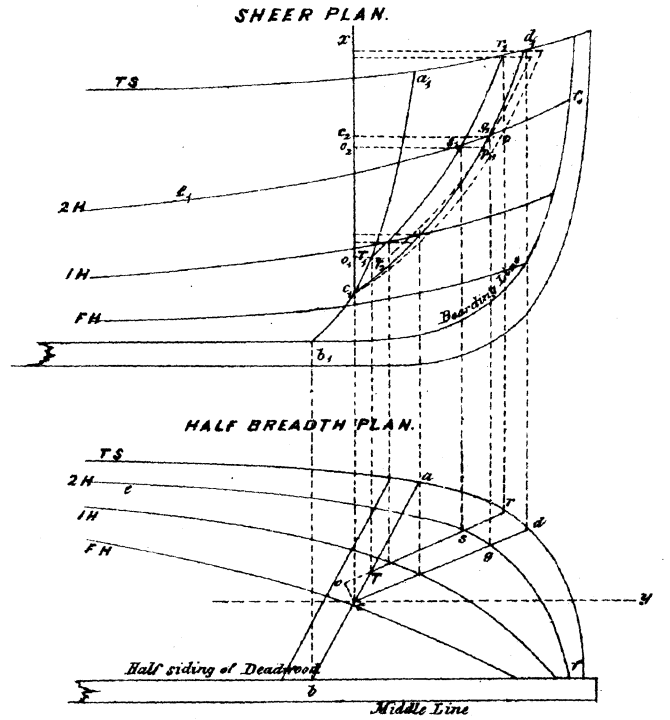
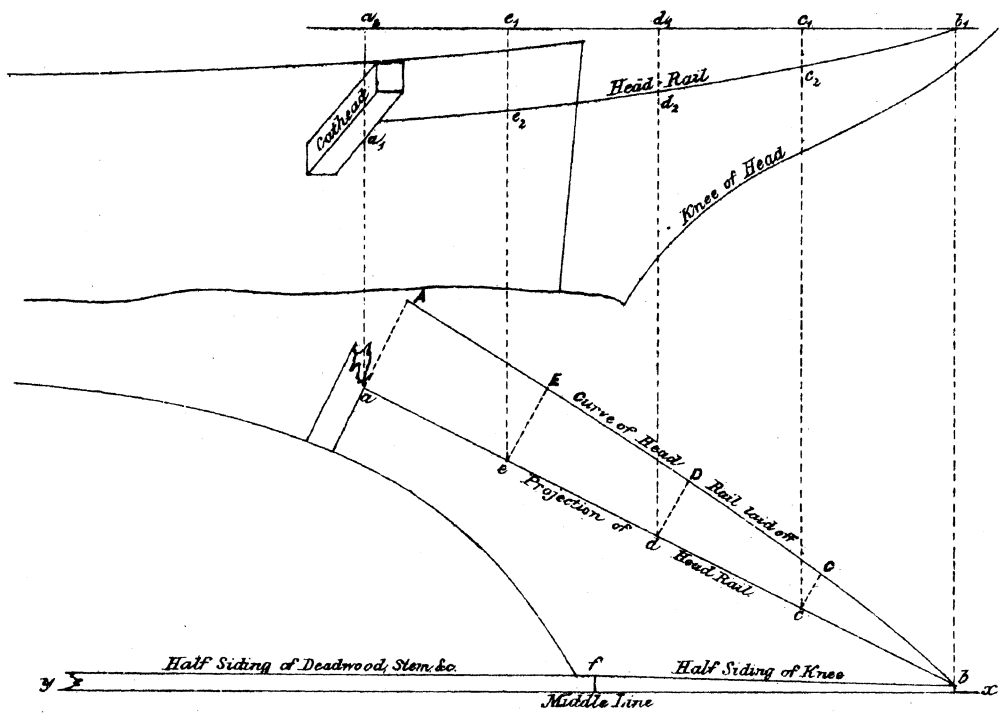


Plate XLIII




Cutwater
Head Rail
Knee of Head
Curve of Head
Projection of Head Rail
Rail tenon
Half Siding of Deadwood, Stem &c.
Half Siding of Knee
Middle Line

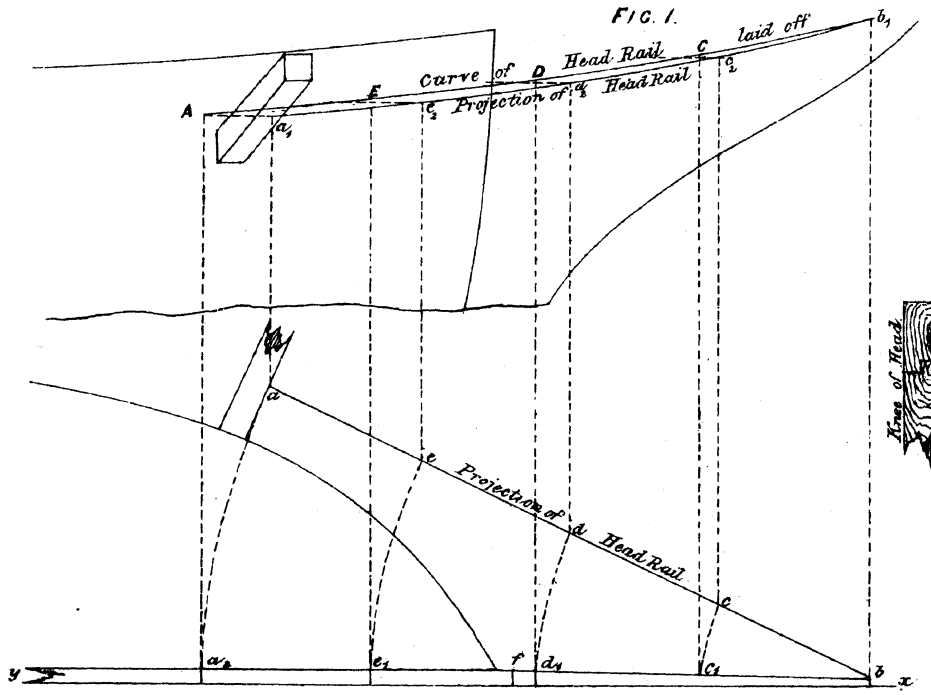


FIG. 1.
Curve of Head Rail laid off
Projection of Head Rail
Projection of Head Rail

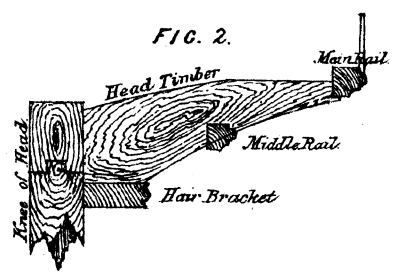
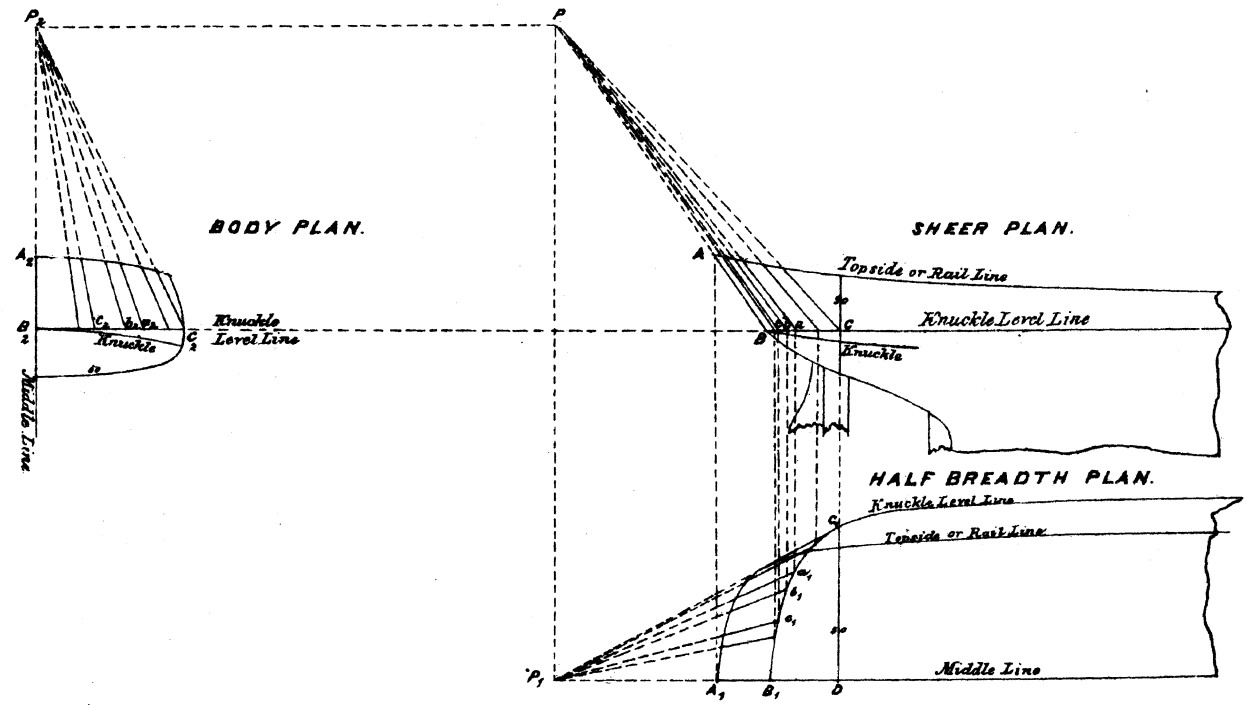


FIG. 2.
Main Rail
Head Timber
Middle Rail
Knee of Head
Hair Bracket


BODY PLAN.
Knuckle Level Line
Knuckle
Middle Line
SHEER PLAN.
Topside or Rail Line
Knuckle Level Line
Knuckle
HALF BREADTH PLAN.
Knuckle Level Line
Topside or Rail Line
Middle Line

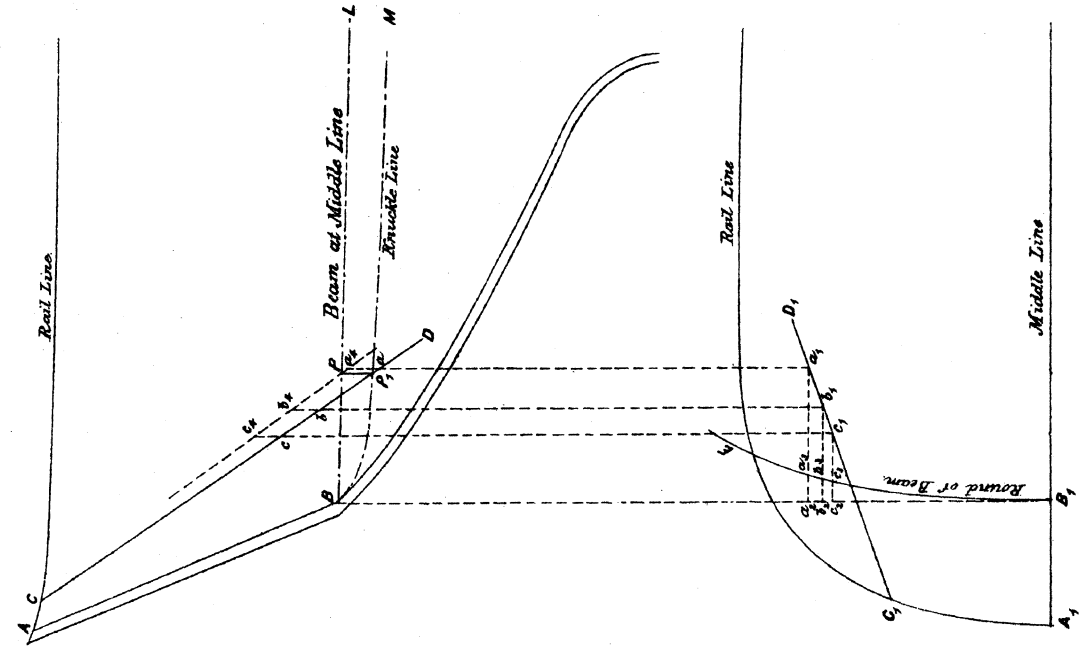

Rail Line
Beam at Middle Line
Knuckle Line
Rail Line
Round of Beam
Middle Line

Plate XLVIII

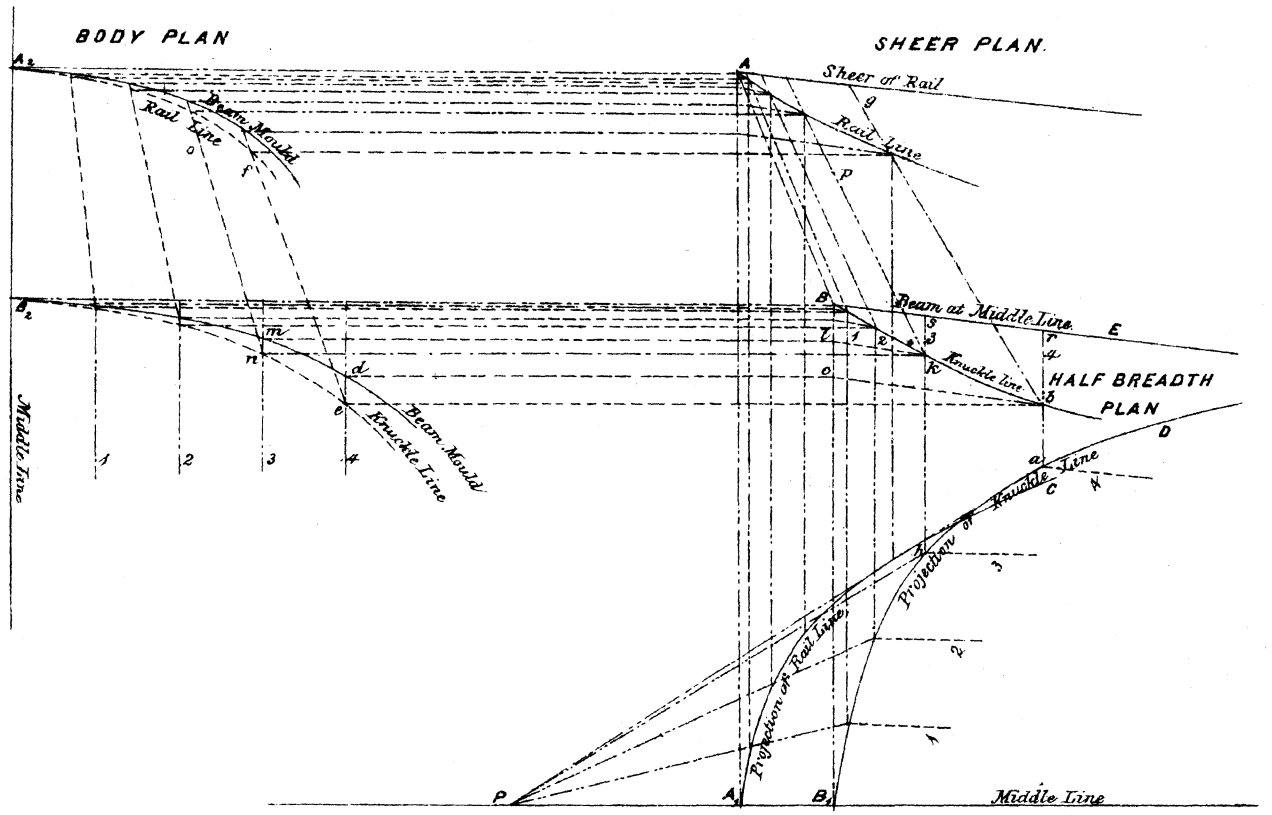


Plate XLIX

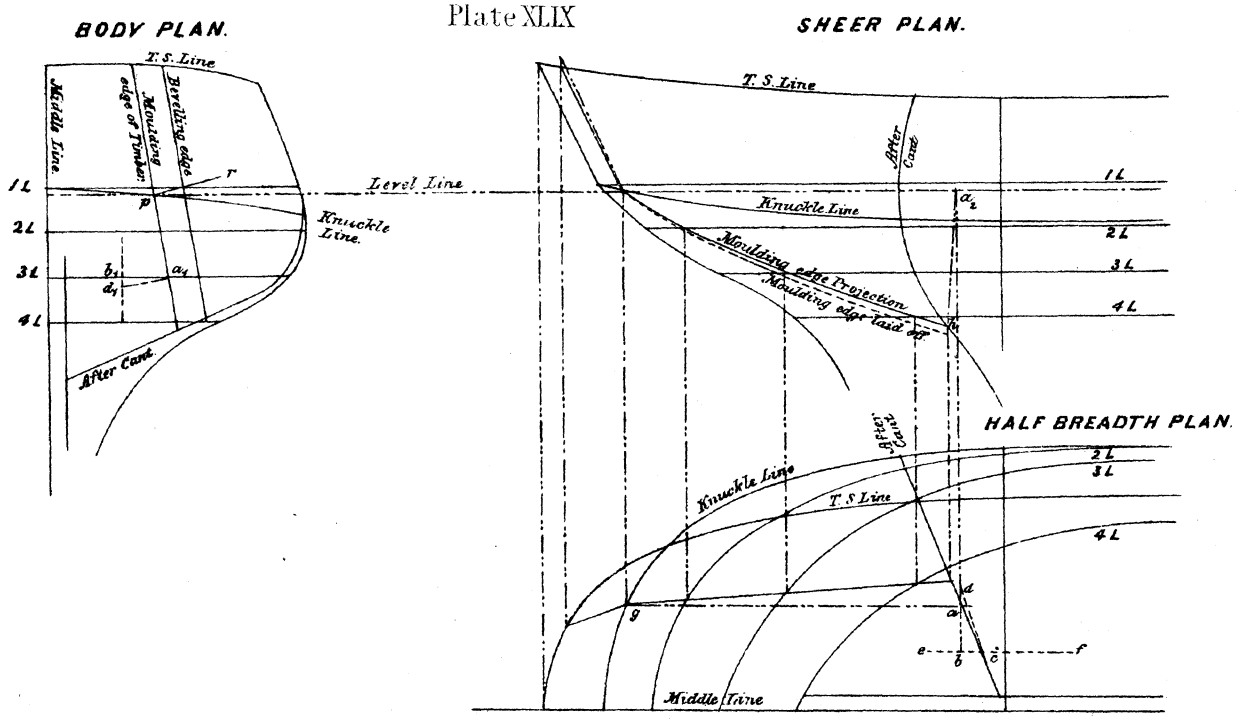
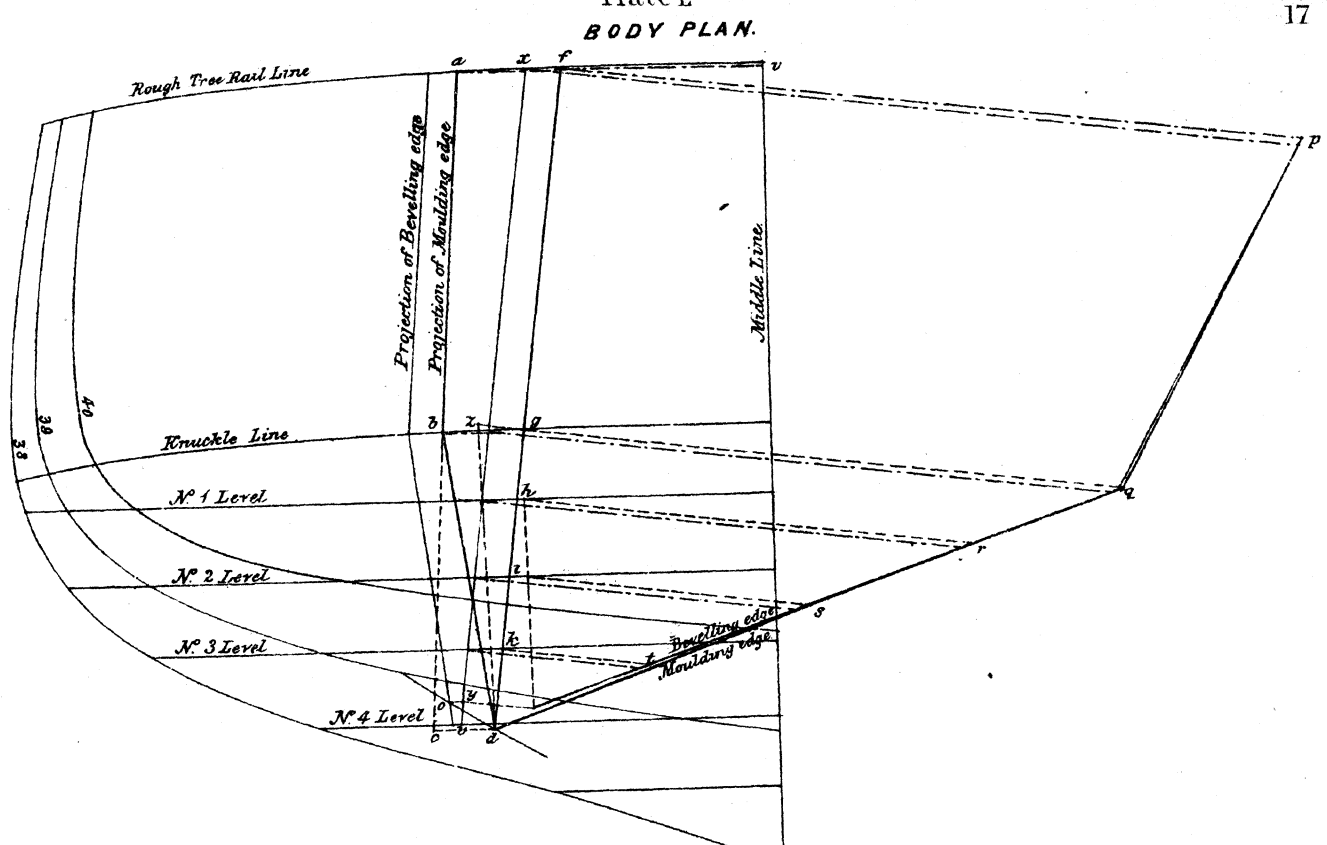
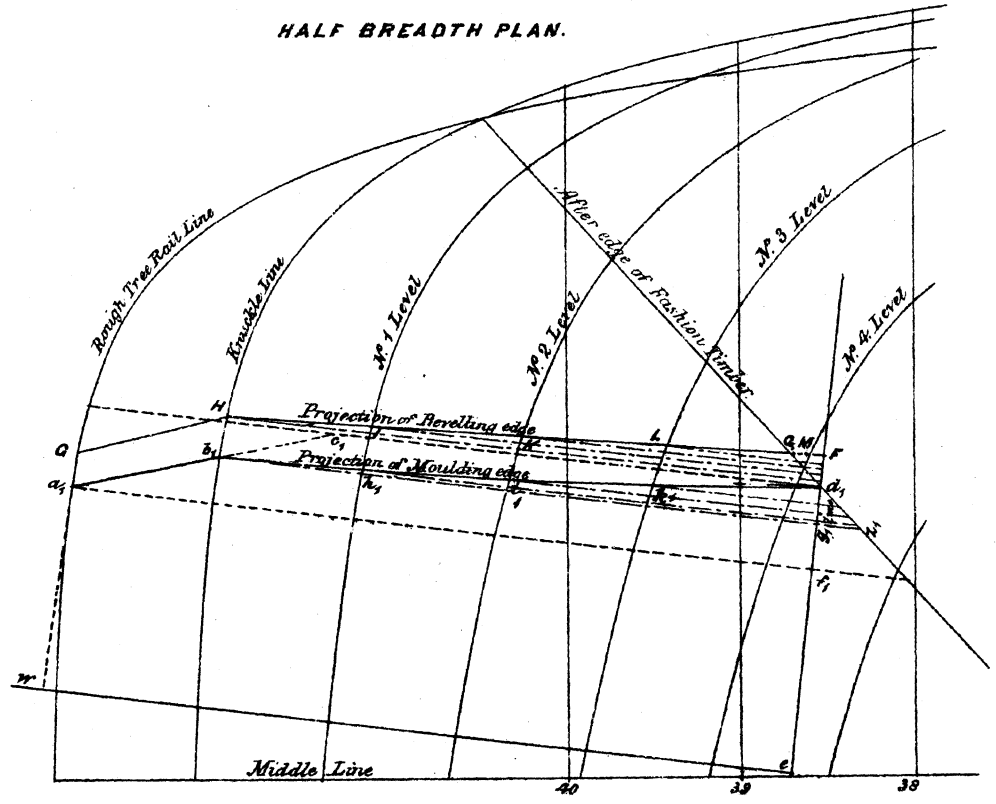


Plate L





A B A

Plate LI

FIG. 1.

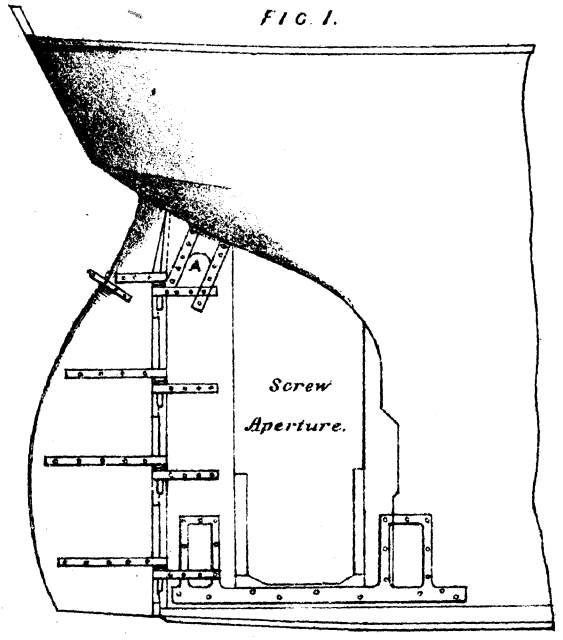


FIG. 2.

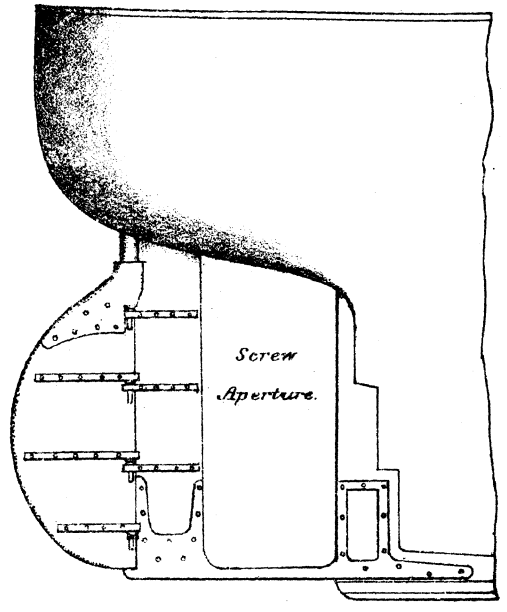


Plate LII

FIG. 1

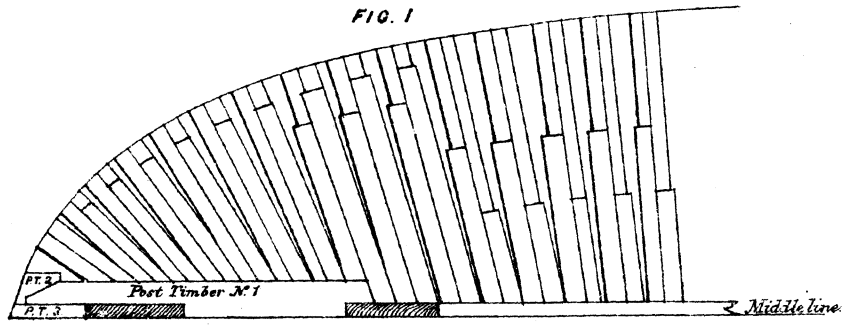


FIG. 2.

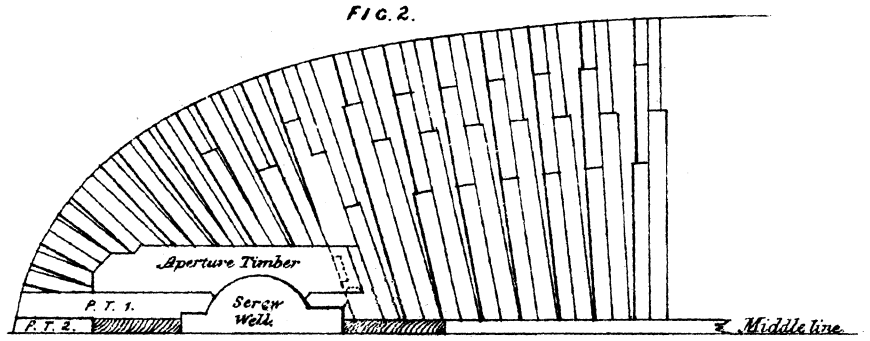


Plate LIII

FIG. 2.

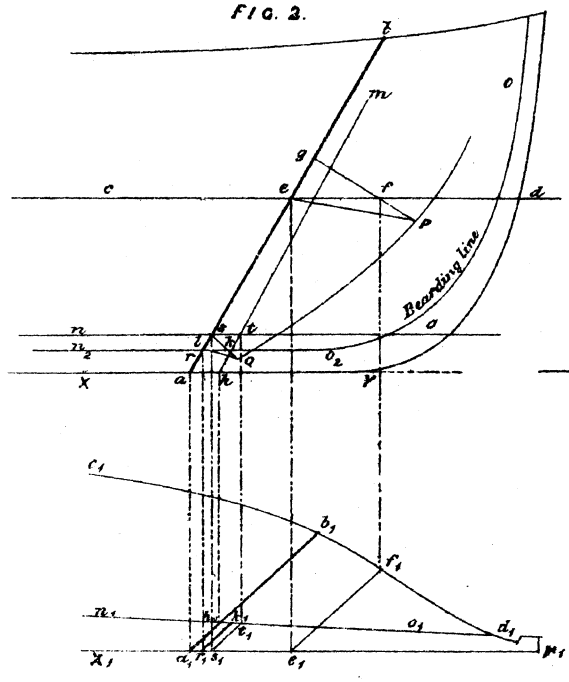


FIG. 1.

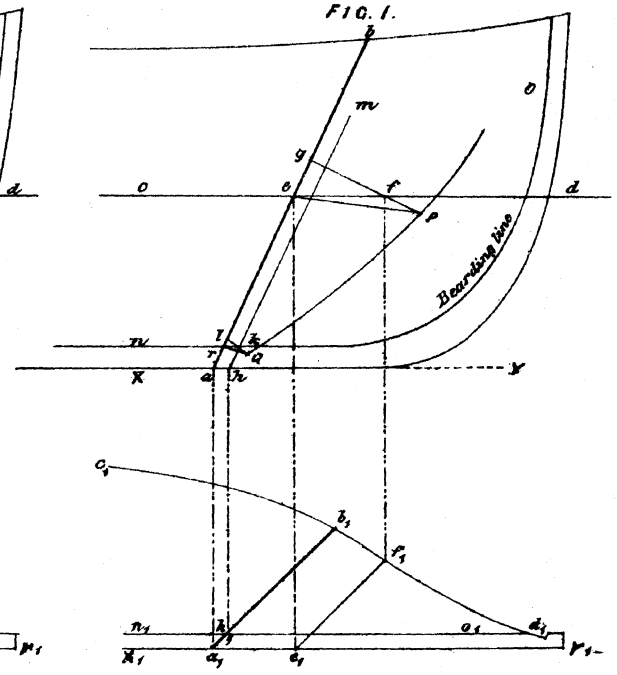


Plate LIV

FIG. 1.

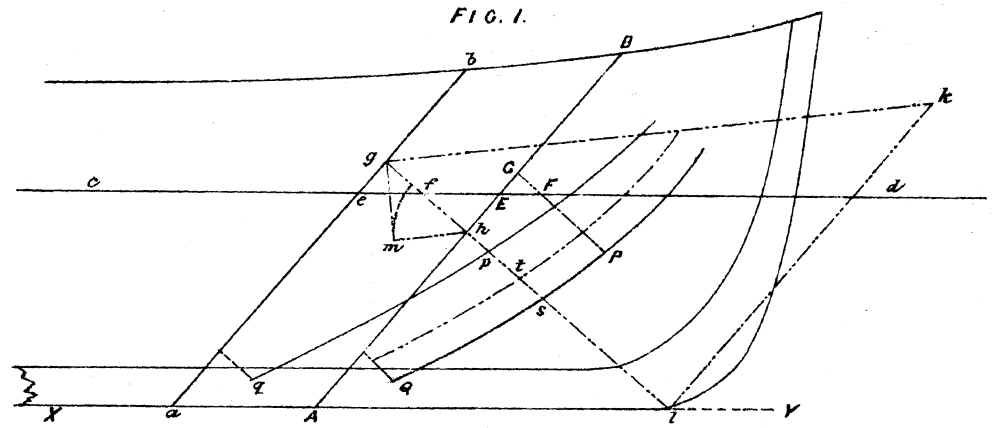


FIG. 2.

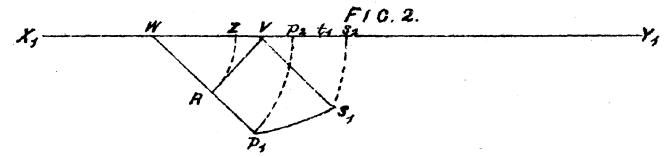


Plate LV

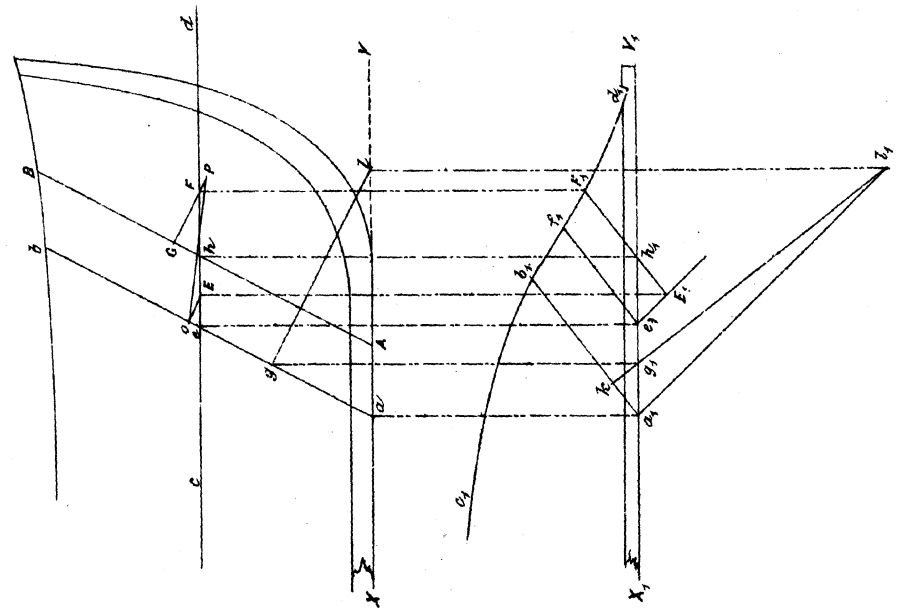
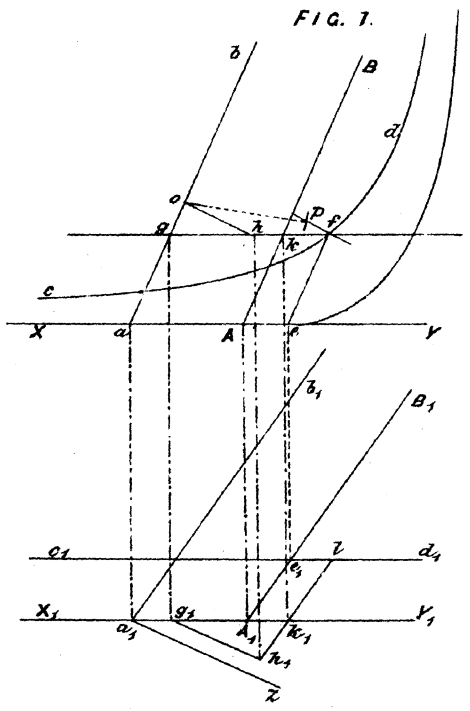


Plate LVI



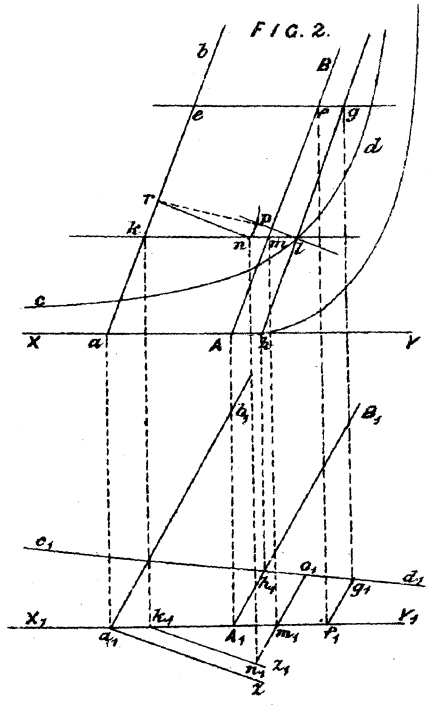


Plate LVII

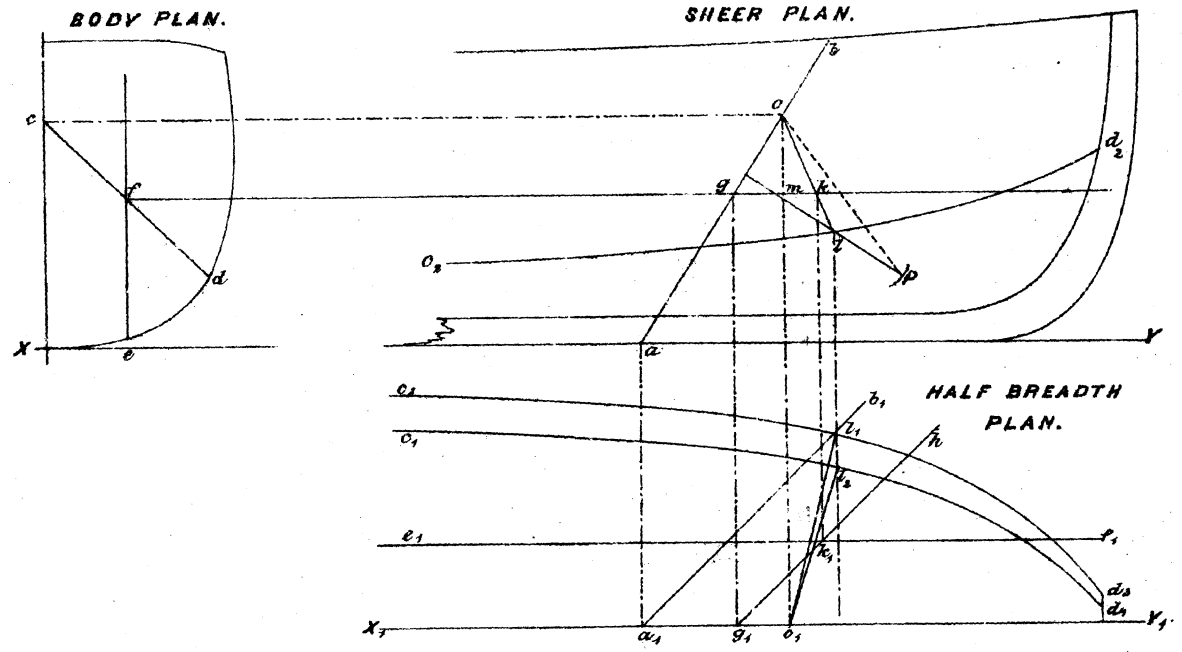


Plate LVIII

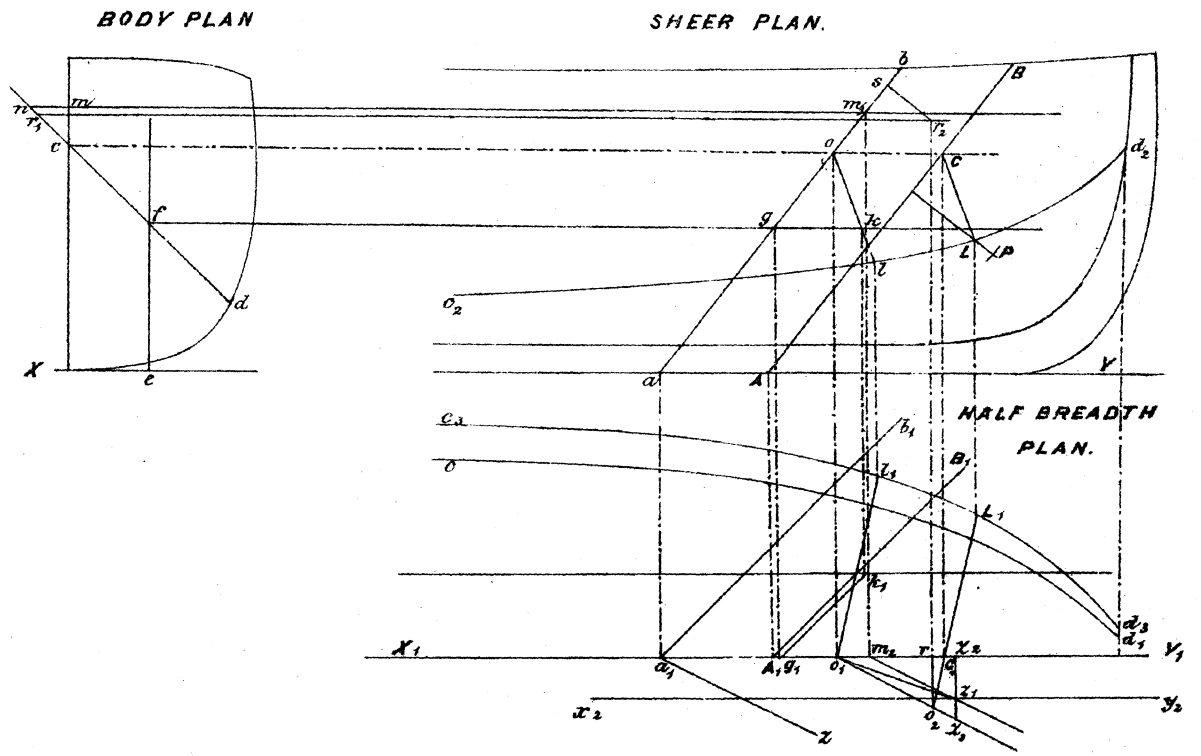


Plate LIX

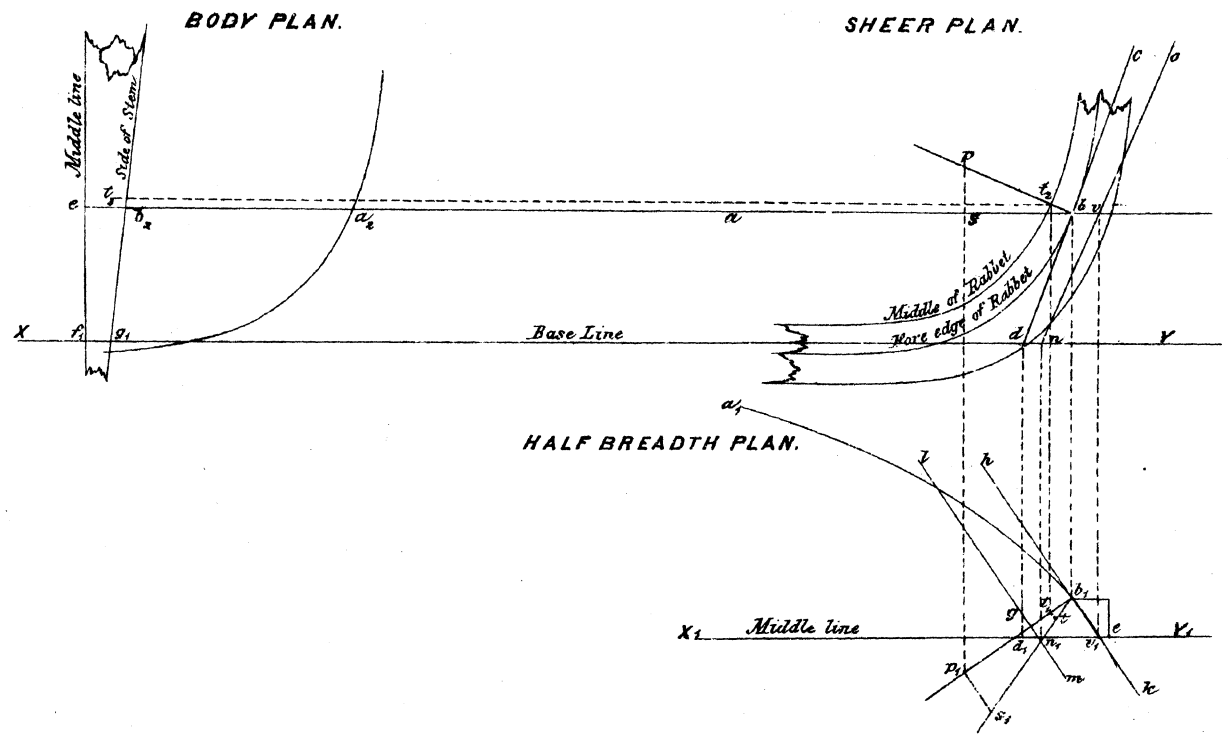


Plate LX

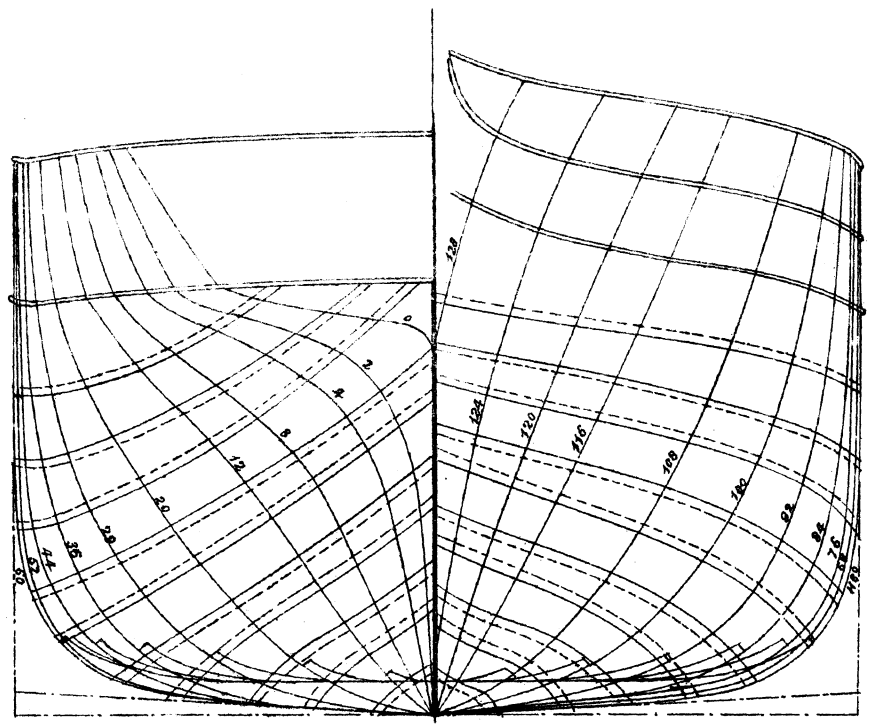


Plate LXI

Fore Body of an Ironclad Ship.

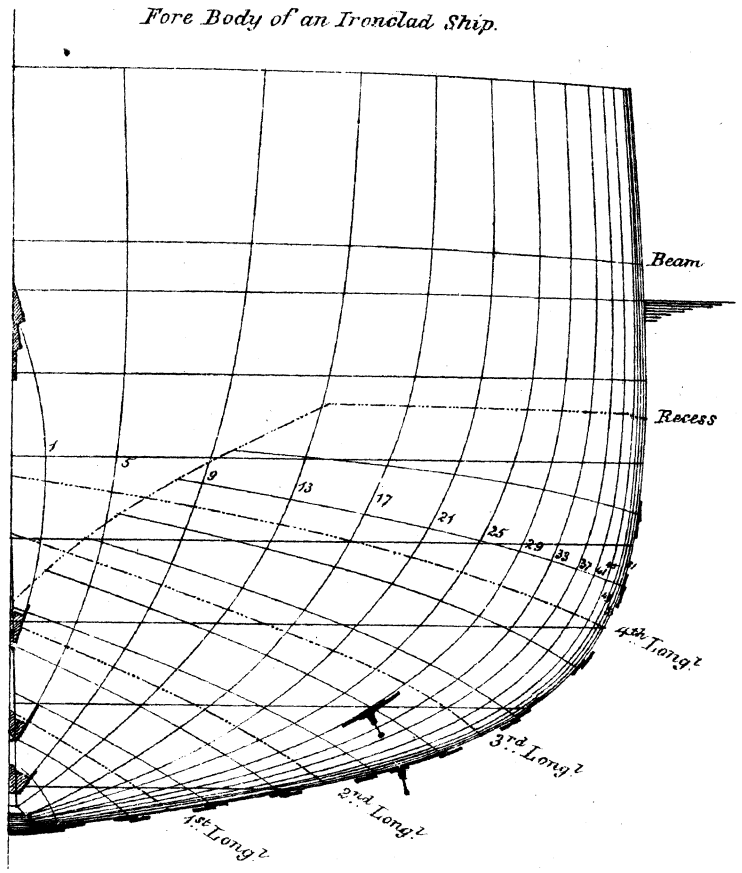


Plate LXII

After Body of an Ironclad Ship.

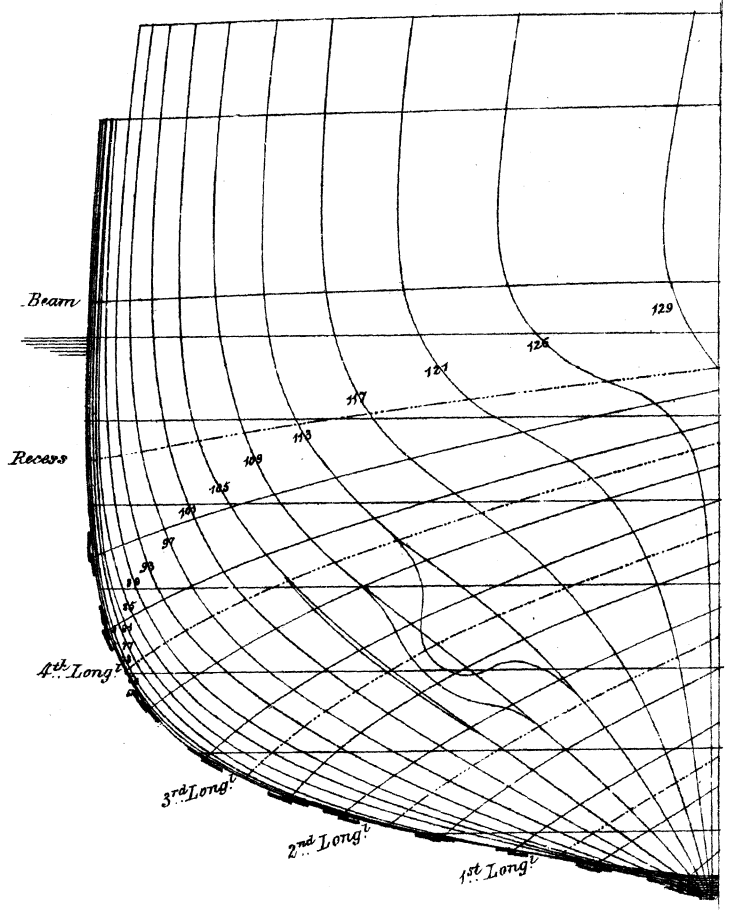


Plate LXIII

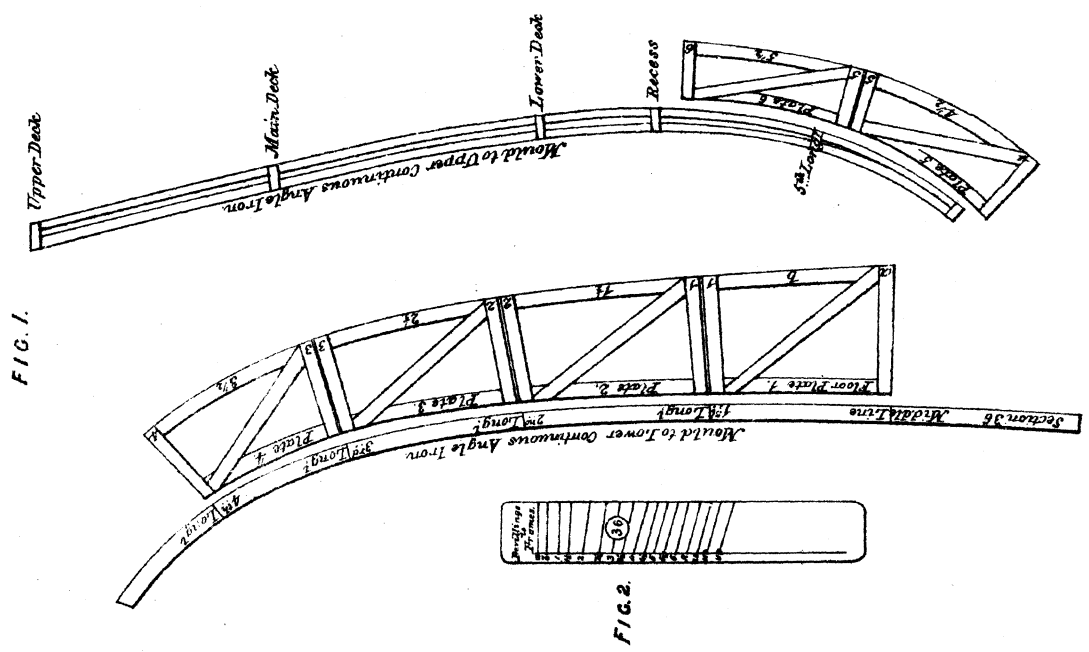


Plate LXIV

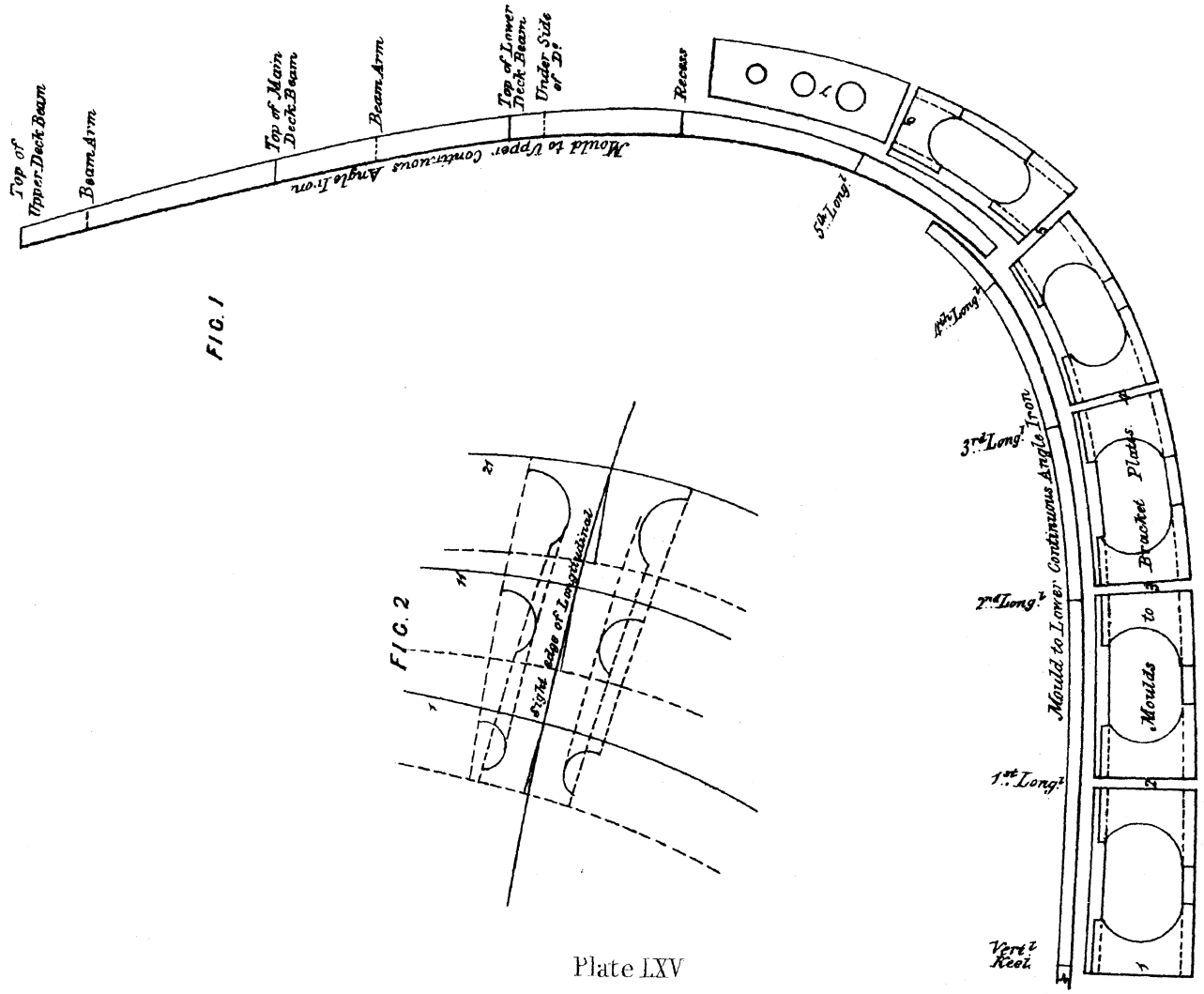


Plate LXV

FIG. 1.

Beam Mould.

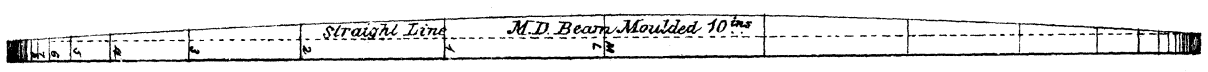


FIG. 2.

Scantling Batten.

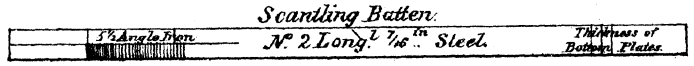
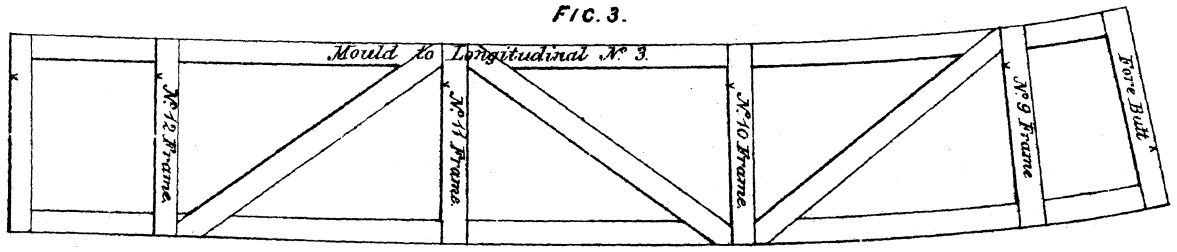
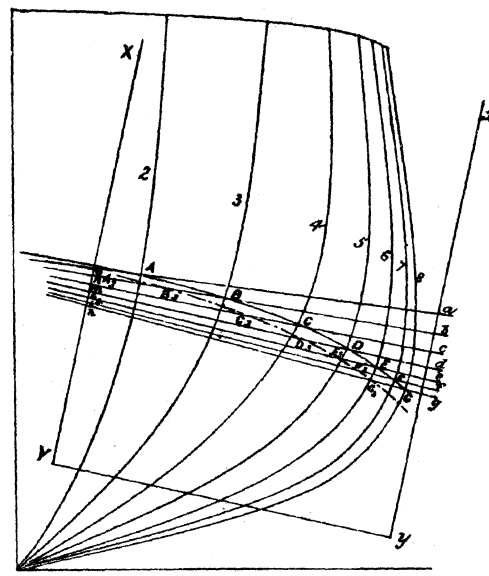


FIG. 3.



BODY PLAN.



DEVELOPMENT OF LONGITUDINAL SURFACE.

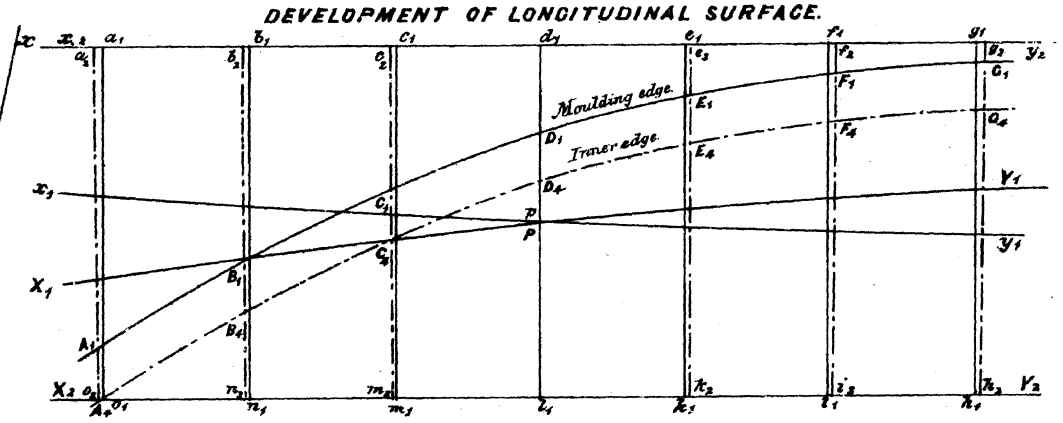
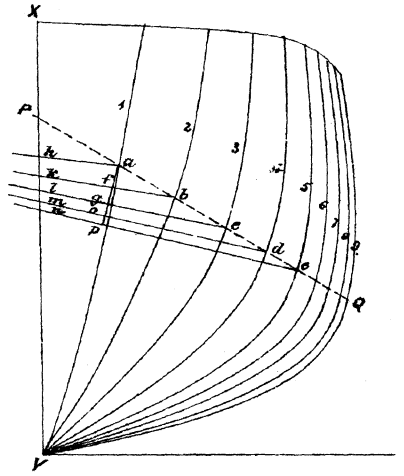


Plate LXVII

BODY PLAN.



HALF BREADTH PLAN.

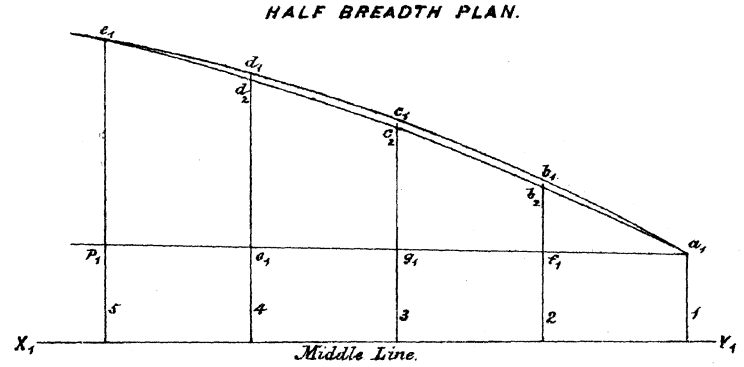


Plate LXVIII

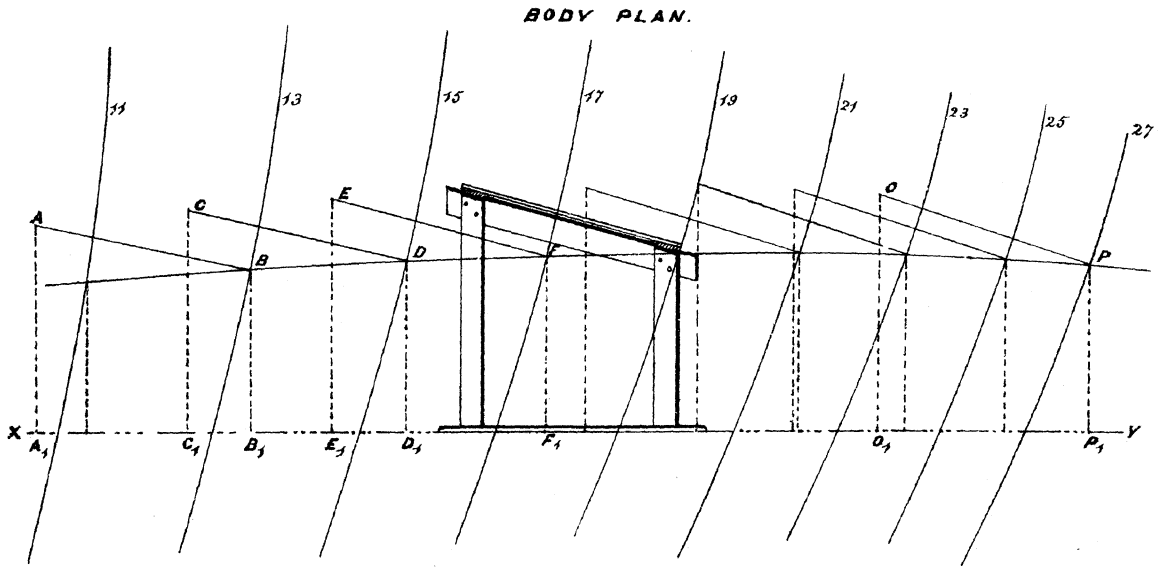


Plate LXIX.

HALF BREADTH PLAN.

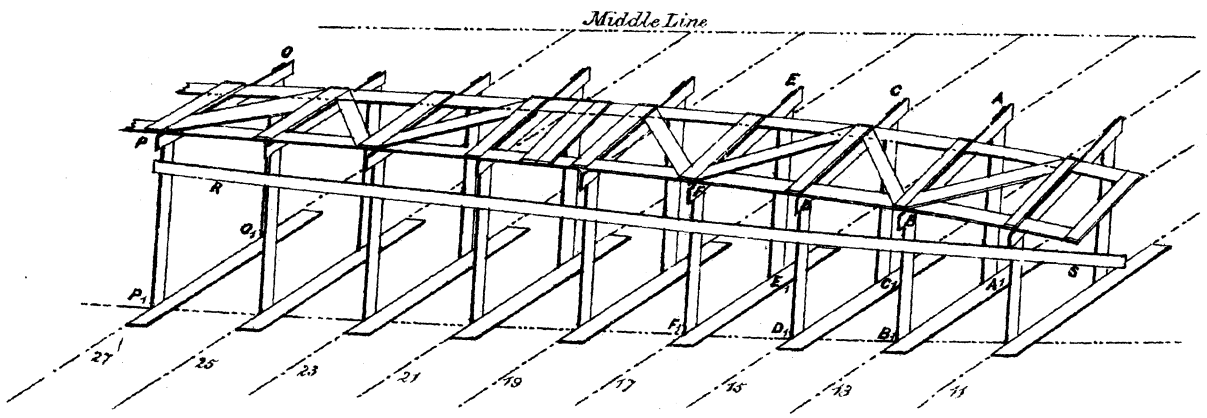


Plate LXX

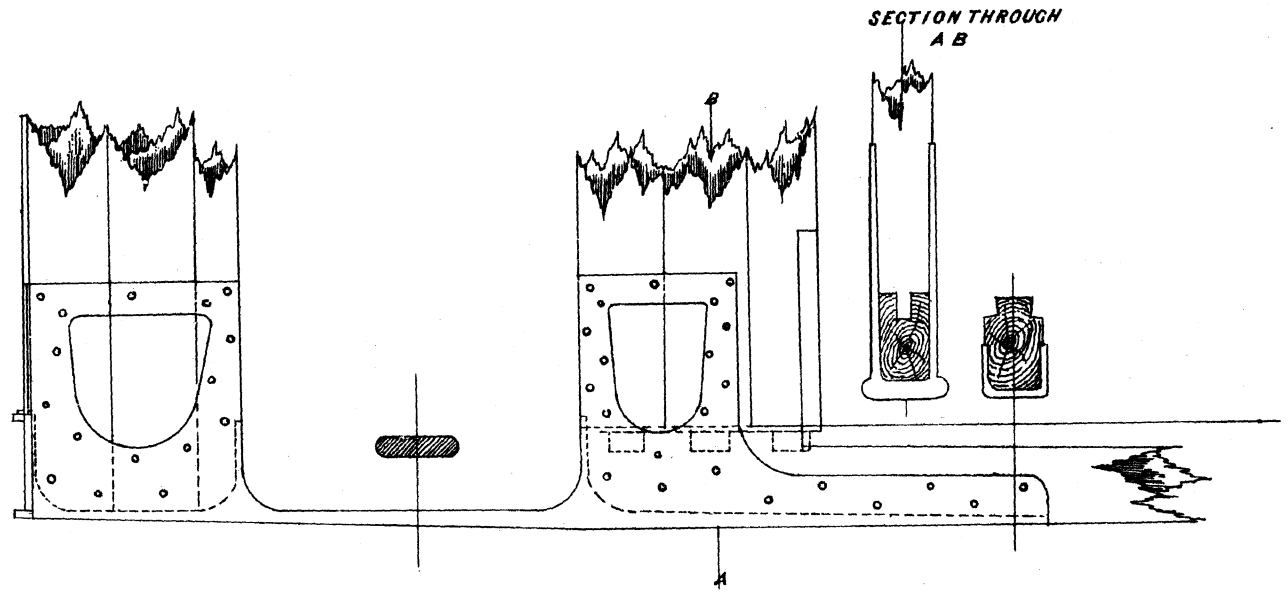


Plate LXXI

FIG. 1.

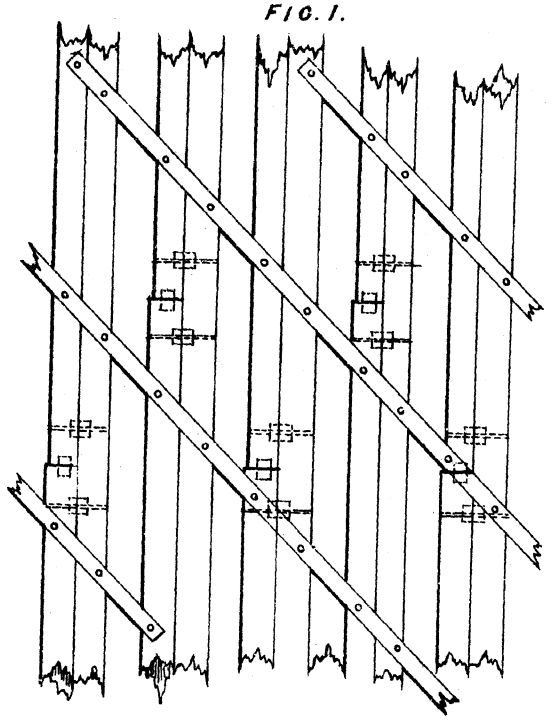
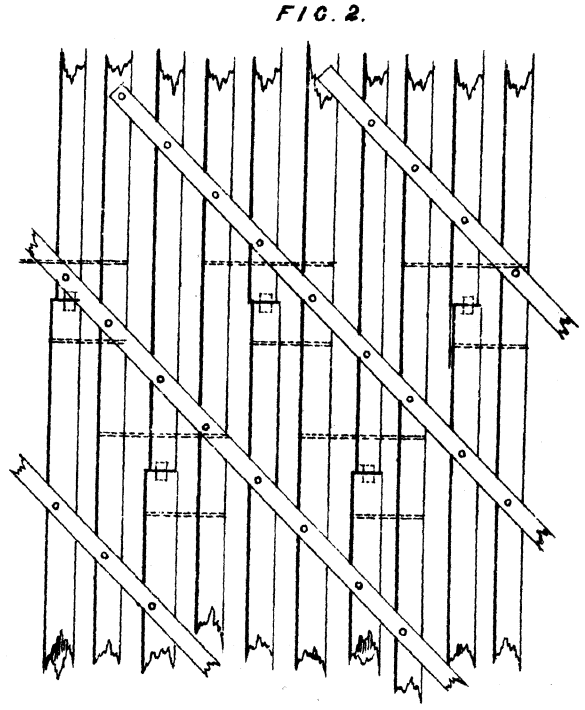


FIG. 2.



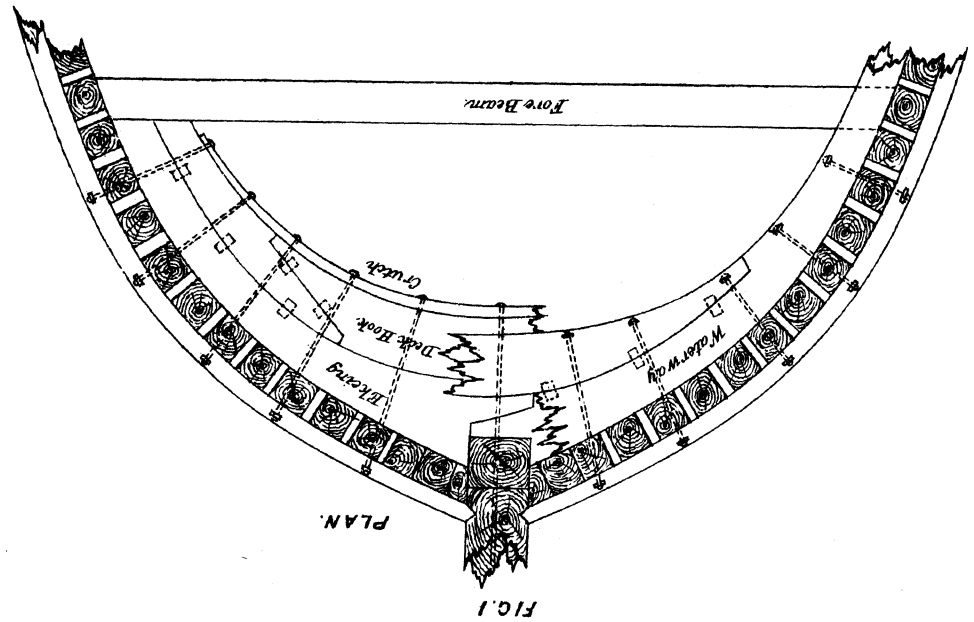


FIG. 1

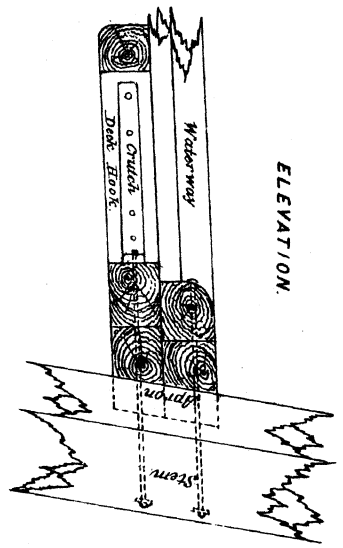


FIG. 2.

Plate LXXVI

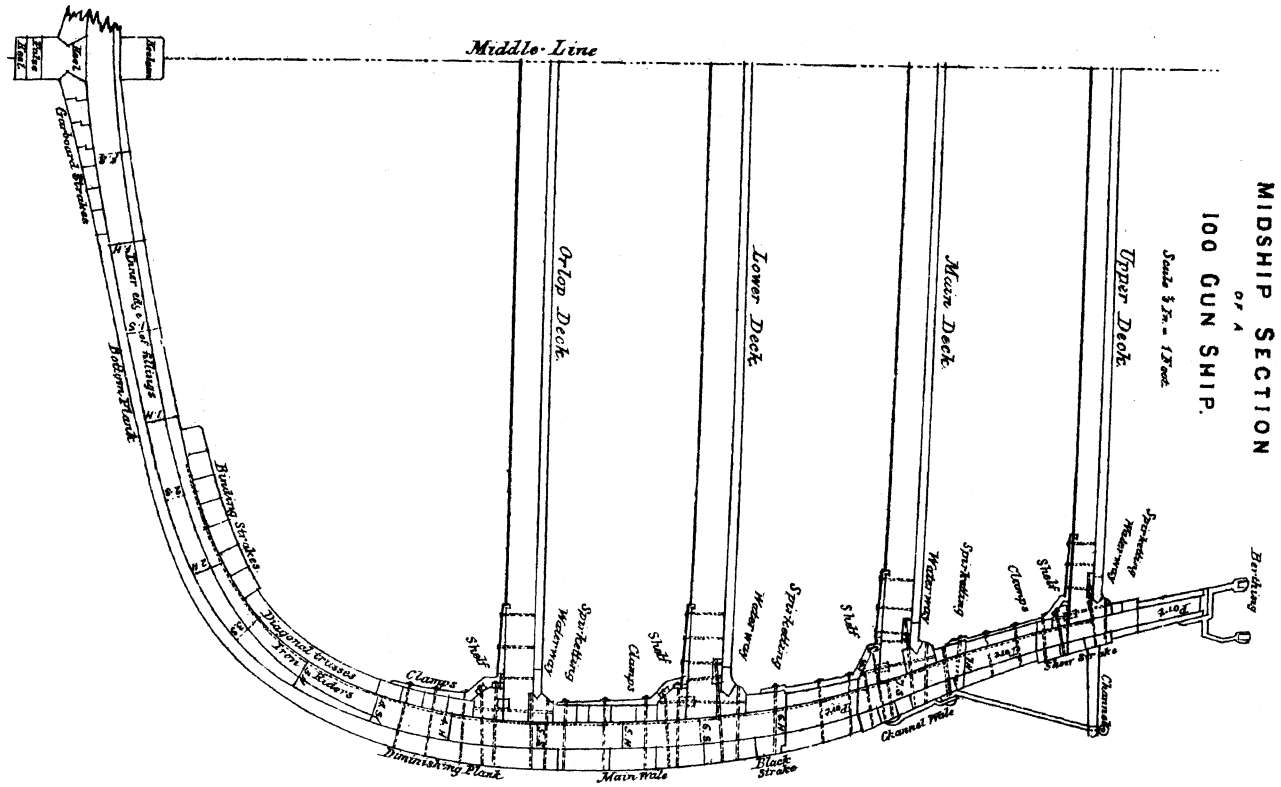


Plate LXXIV

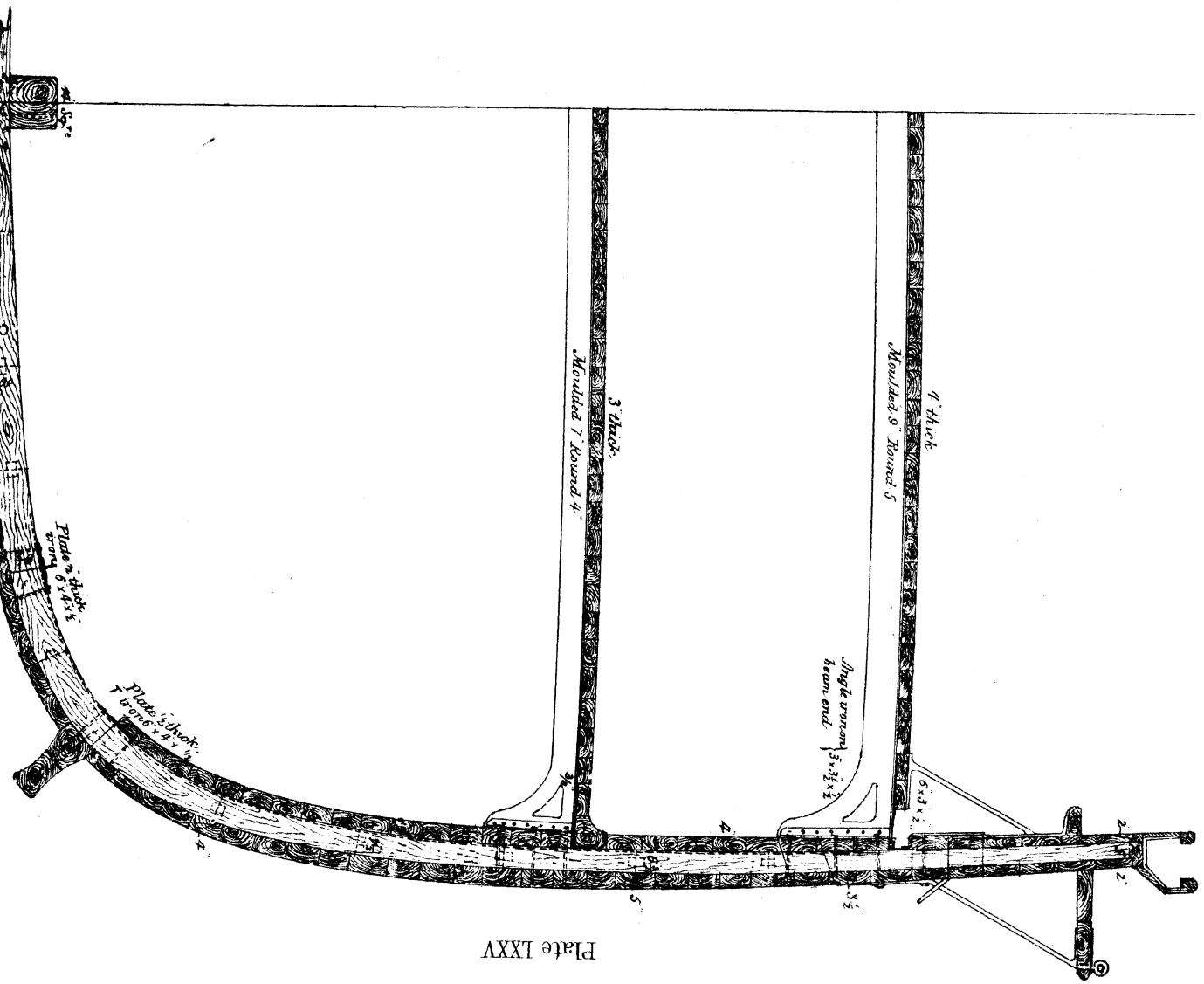


Plate LXXV

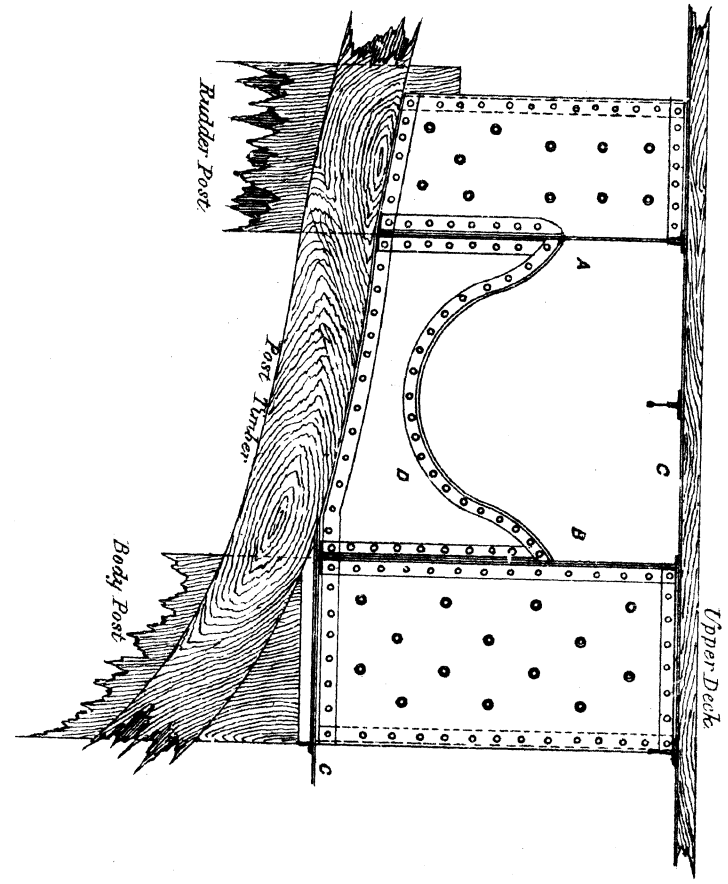


Plate LXXIII

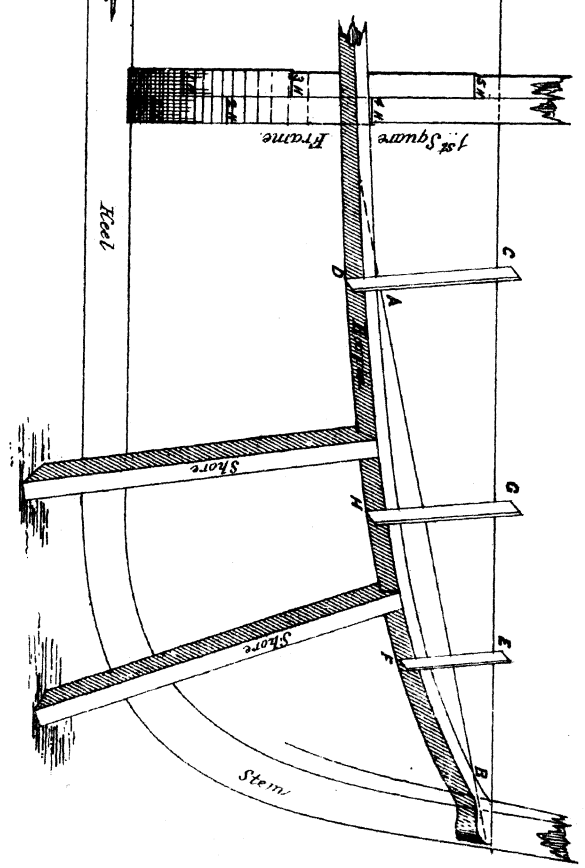


Plate LXXII

Plate LXXVII

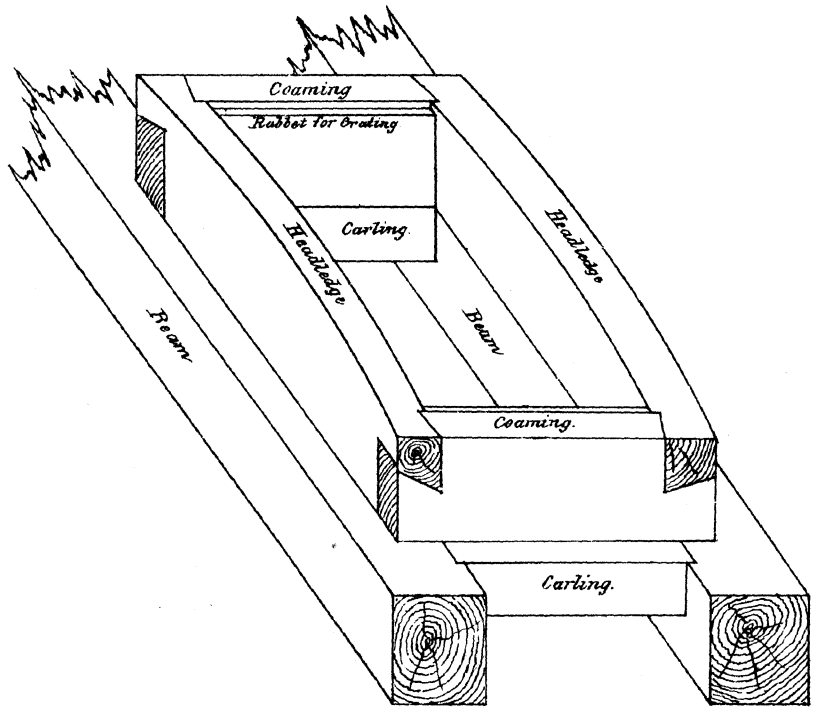


Plate LXXVIII

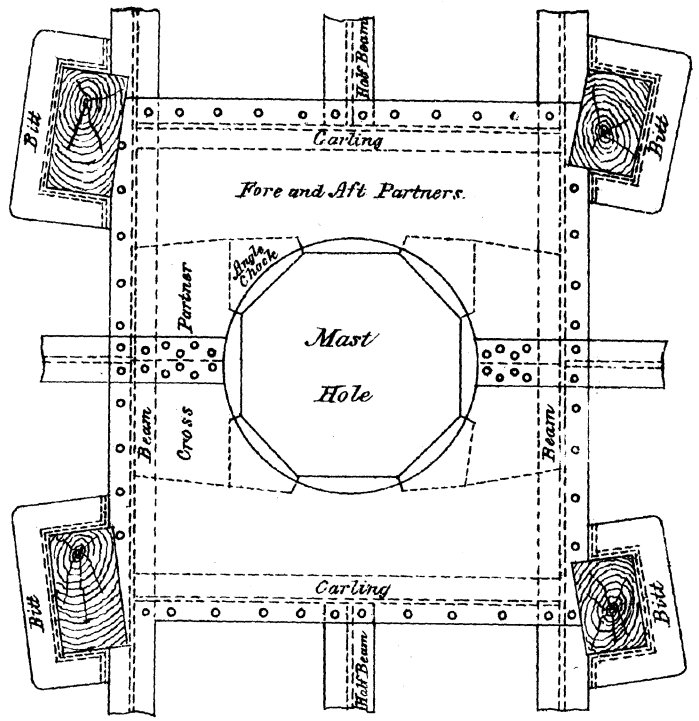


Plate LXXIX

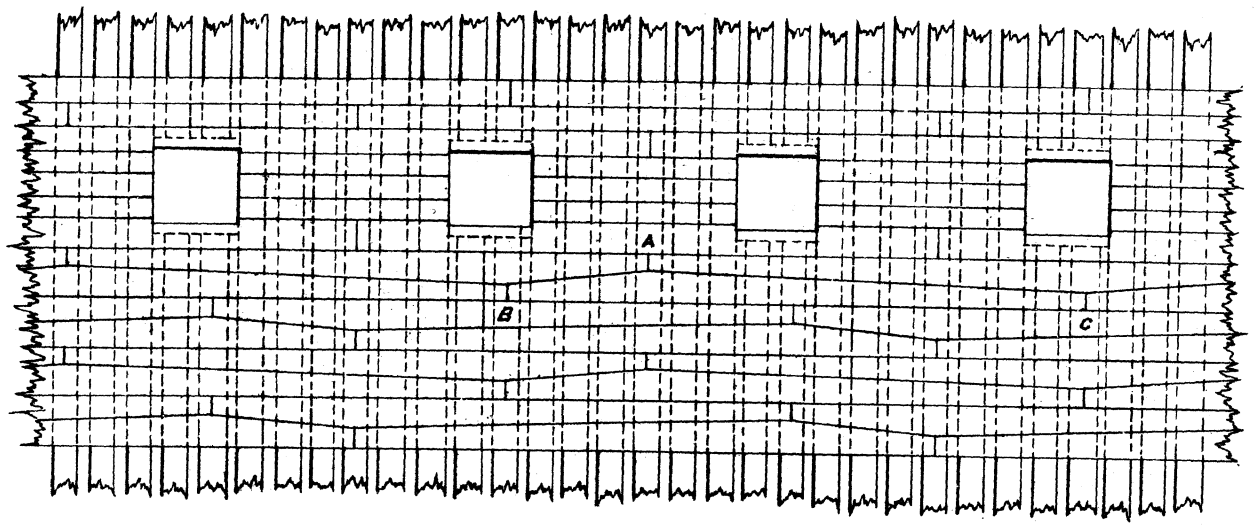


Plate LXXX

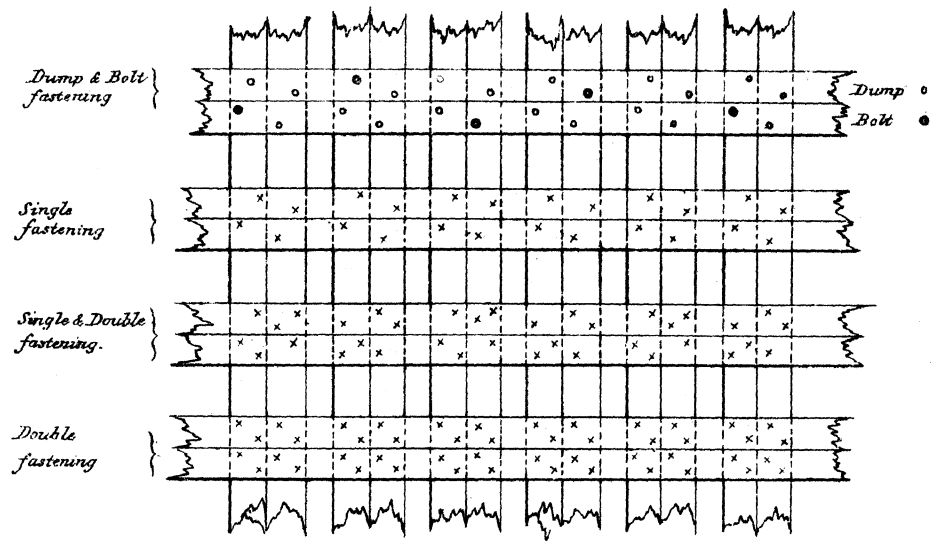


Plate LXXXI

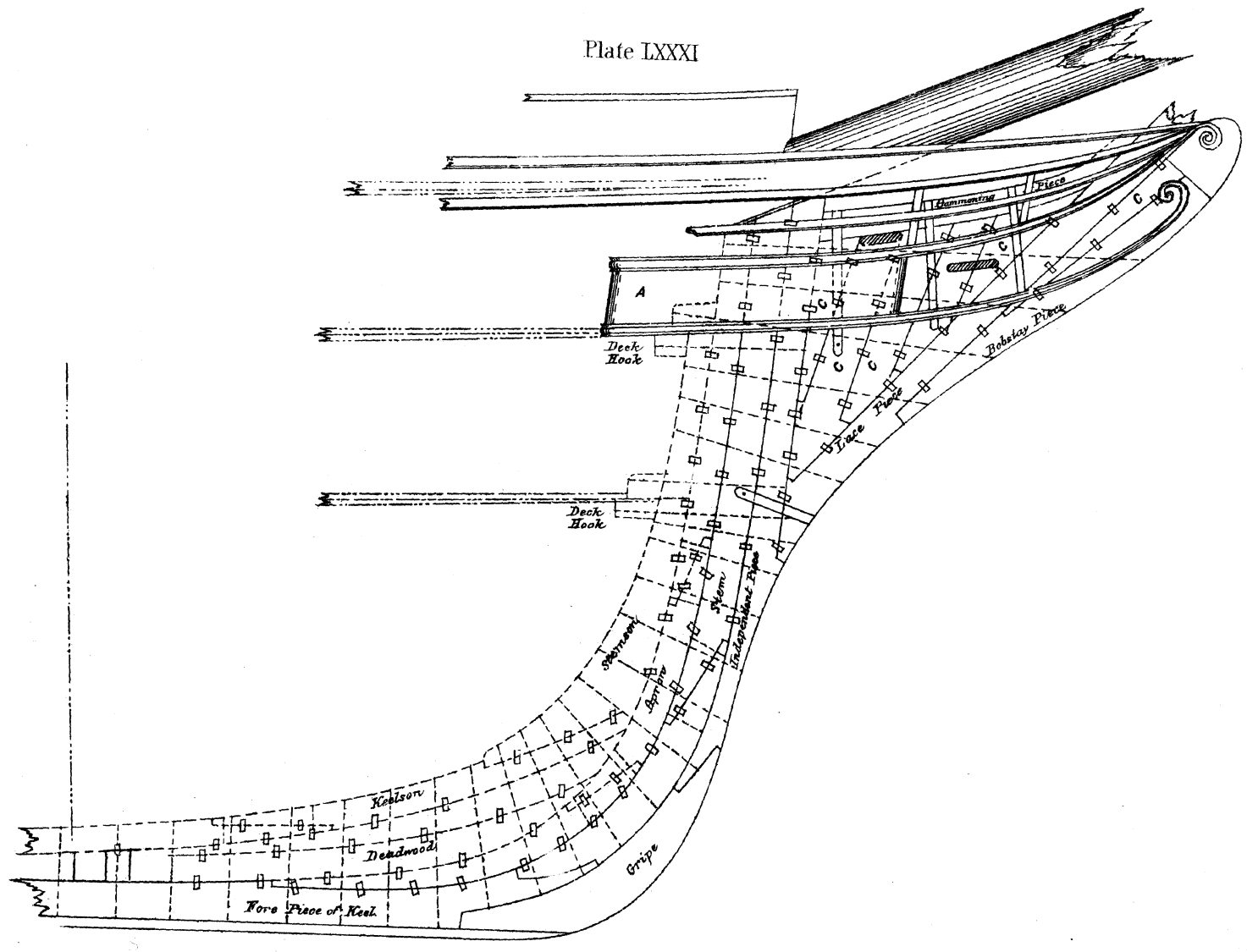


Plate LXXXII

FIG. 1.

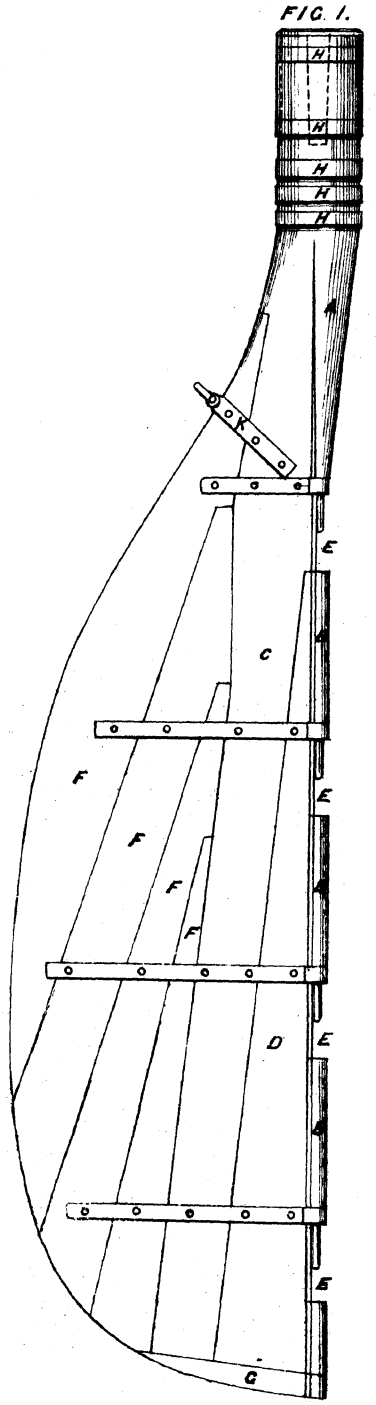


FIG. 2.

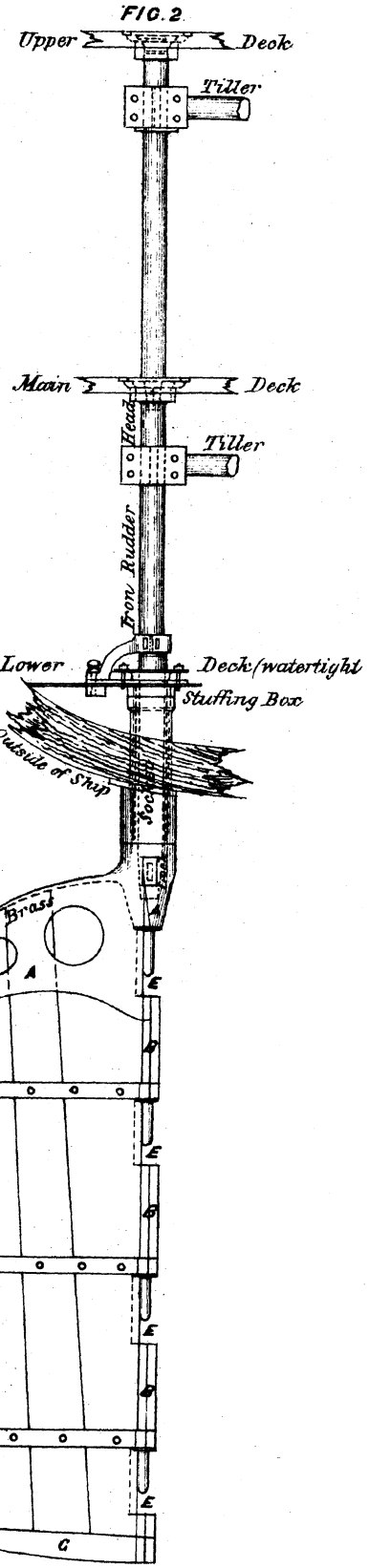


Plate LXXXIII

FIG. 1. ELEVATION.

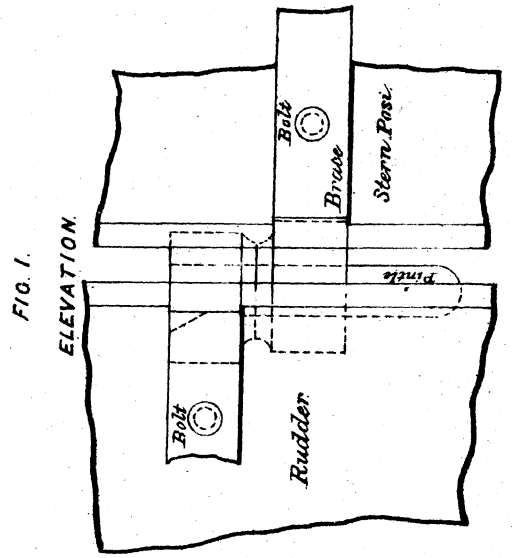


FIG. 2. HORIZONTAL SECTION.

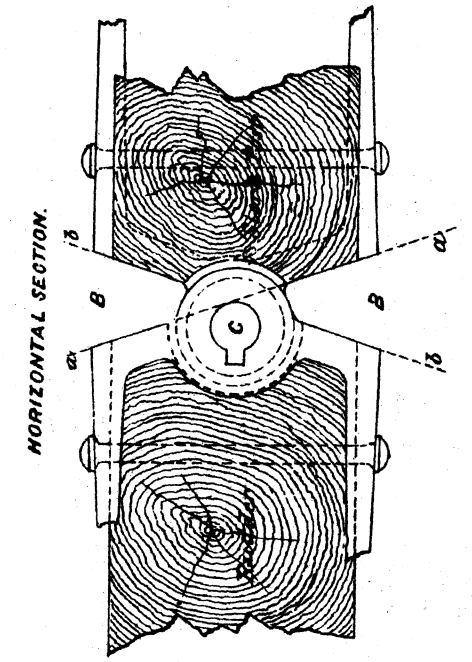


Plate LXXXIV

FIG. 1.

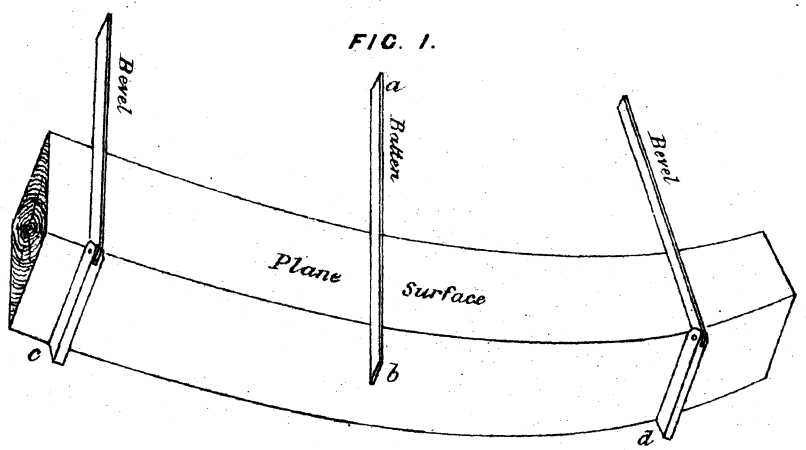


FIG. 2.

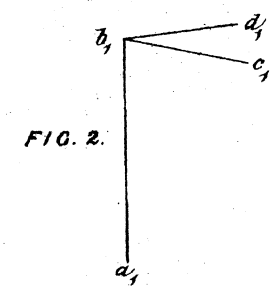


Plate LXXXV

FIG. 1.

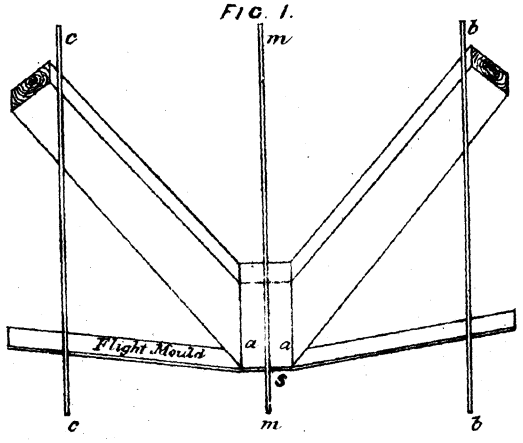


FIG. 2

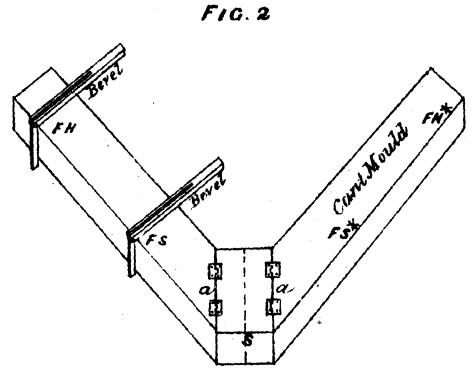


Plate LXXXVI

FIG. 1.

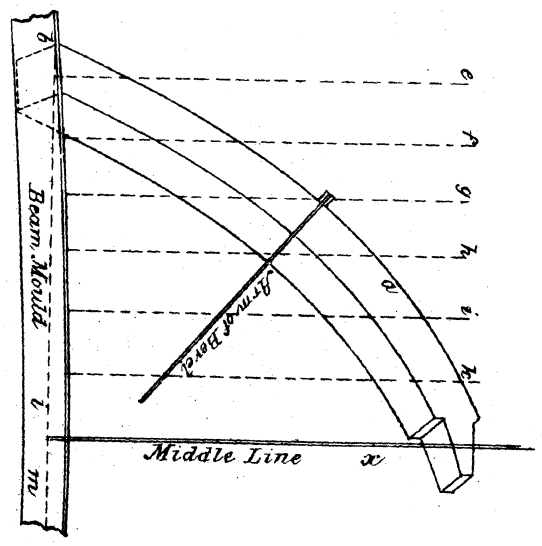


FIG. 2

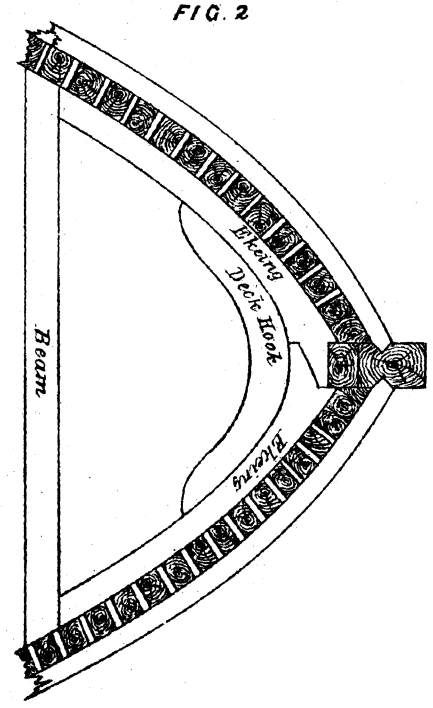


FIG. 3.

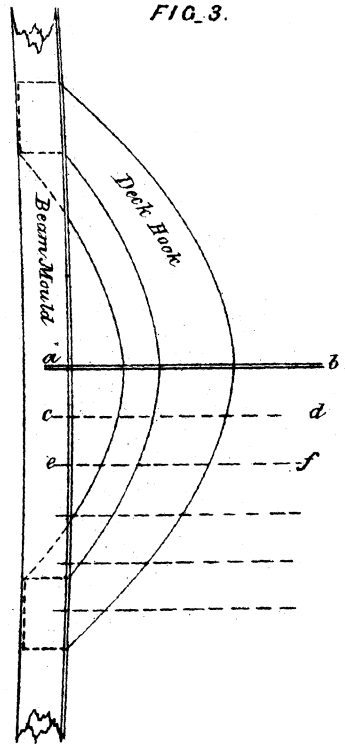
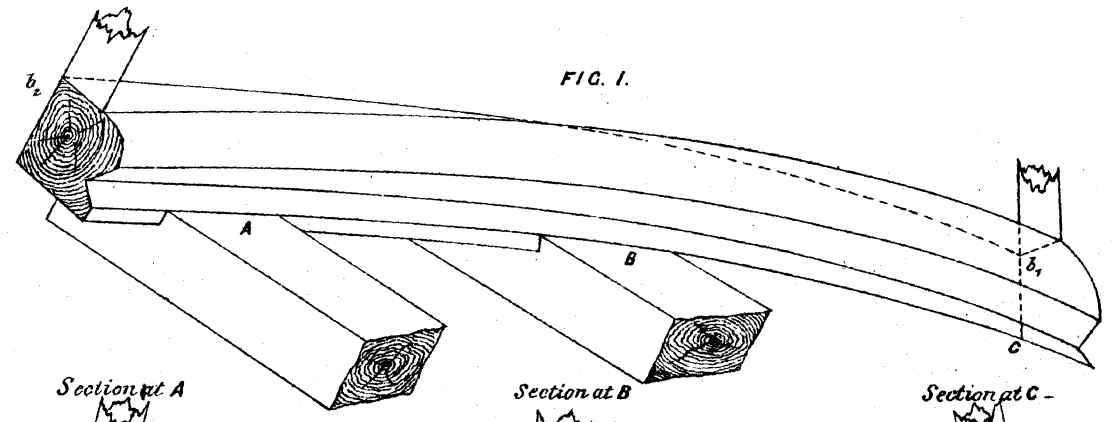
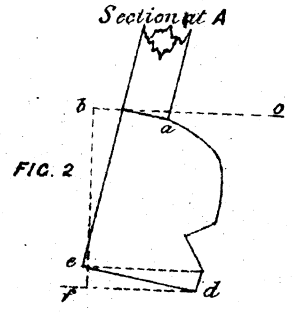


Plate LXXXVII

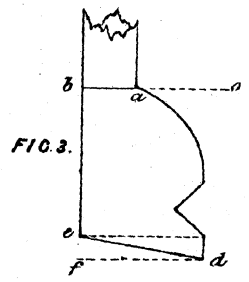
FIG. 1.



Section at A



Section at B



Section at C -

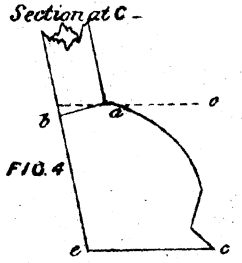


Plate LXXXVIII

FIG. 1.

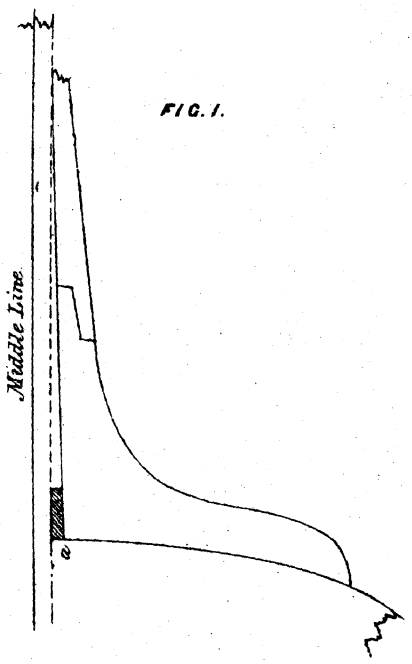
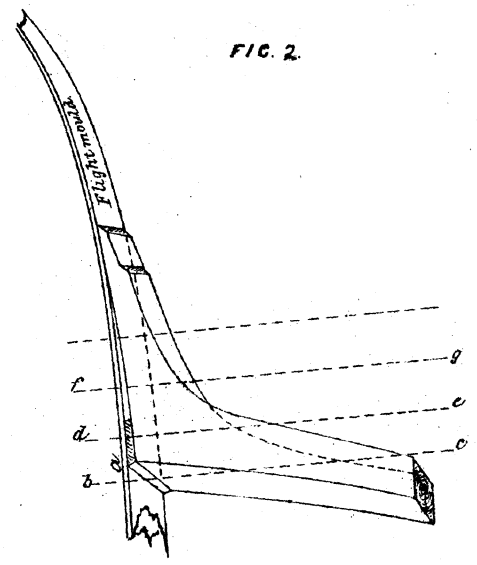


FIG. 2.



Sheer Strake

Sheer Strake

Stringer

Tie Plate

Bulb Tie 6 x 5 x 12

Bulb iron 9 x ½ for 200 Feet, 9 x ½ at ends

Bulb iron 9½ x ⅝ for 200 Feet, 9 x ½ at ends

Bulb iron 9 x ½ for 200 Feet, 8 x ⅜ at ends

Frames 6 x 3½ x ⅜ for 190 feet, others 5½ x 3½ x ⅜ alternately to main and awning deck stringers

Reverse Frames 4½ x 3½ x ⅜ for 200 feet, others 4 x 3 x ½ alternately to main deck and 9 above lower deck

Frame

Reverse Frame

A

B

C

D

E

F

Floor

Stanchions on every beam for 123 feet and on every alternate beam before and abaft

Floors 27 x ½ for 200 feet 2' x ⅜ at ends

Plate LXXXIX

Plate XC

FIG. 1.

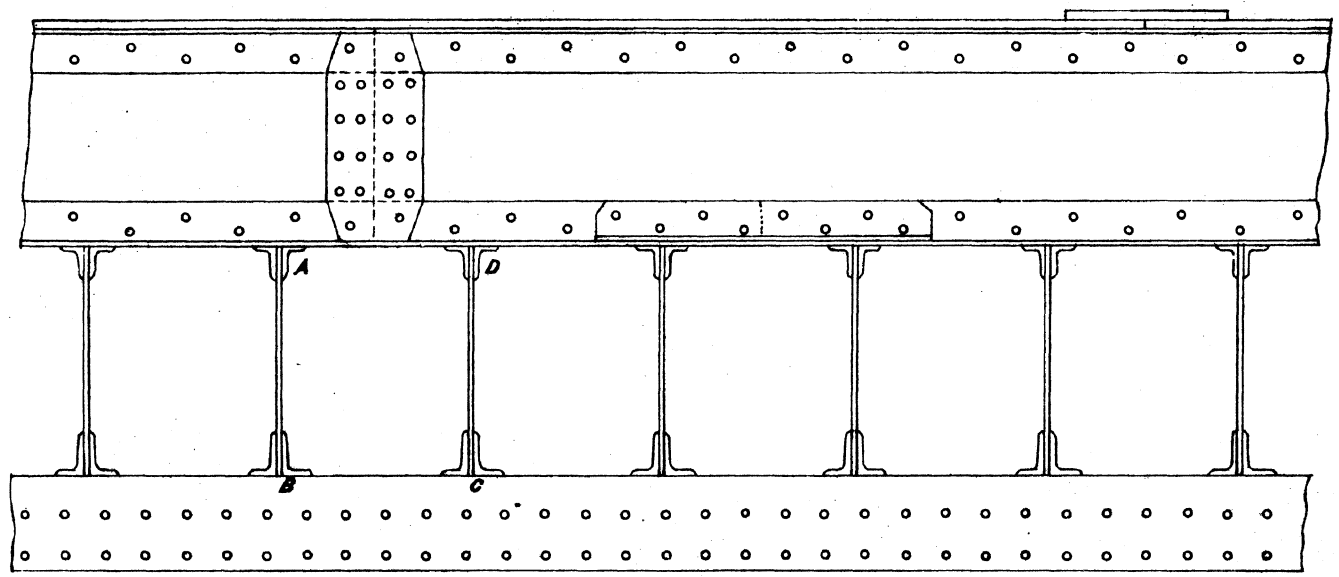


FIG. 2.

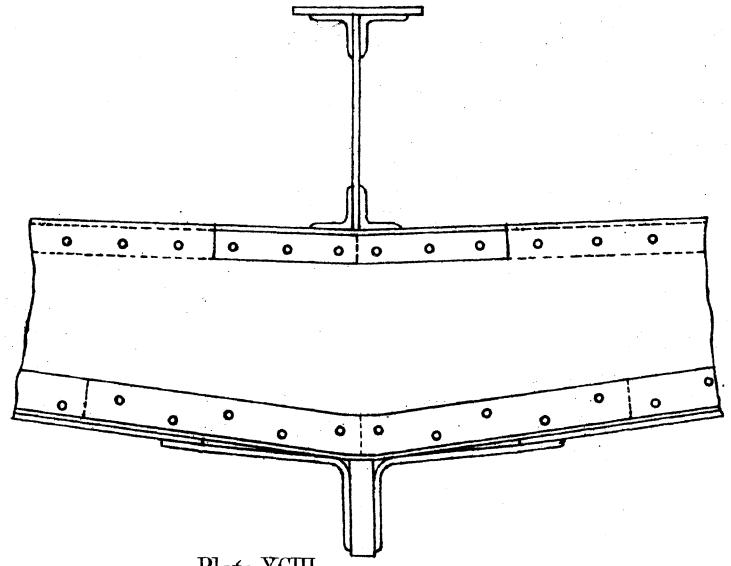


Plate XCIII

FIG. 1.

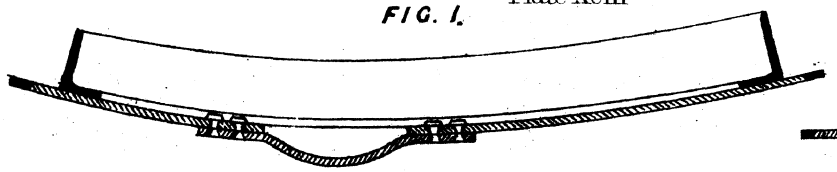


FIG. 3.

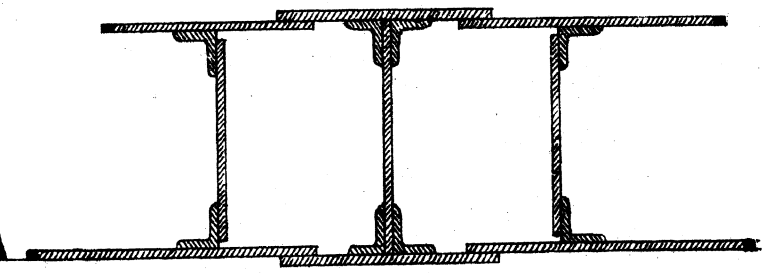


FIG. 2.

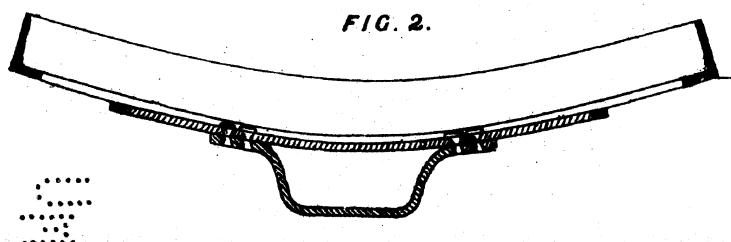


Plate XCI

FIG. 1.

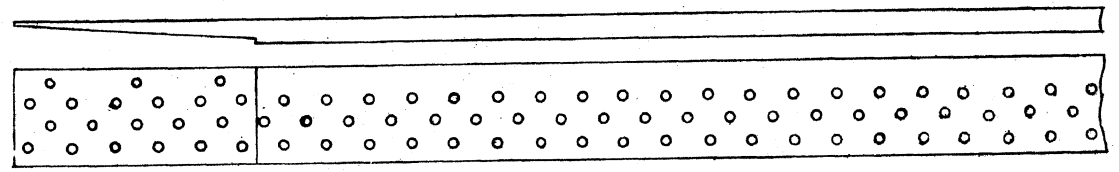


FIG. 2.

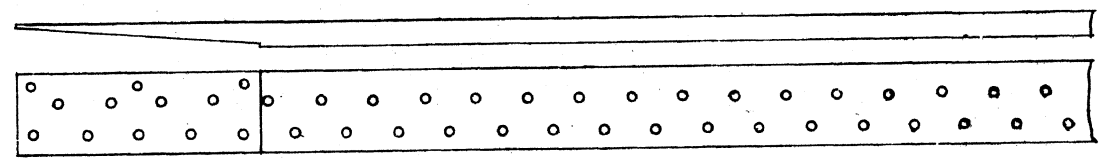
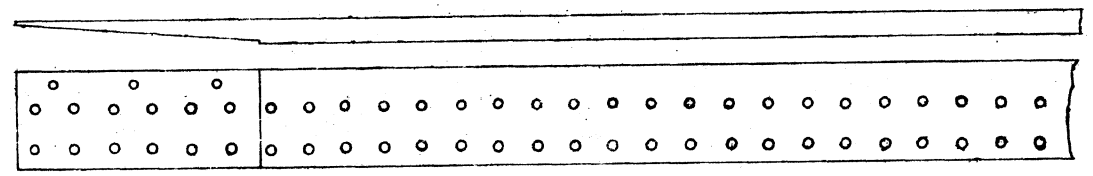


FIG. 3.



Scale ½ inch to the foot

Plate XCII

FIG. 1.

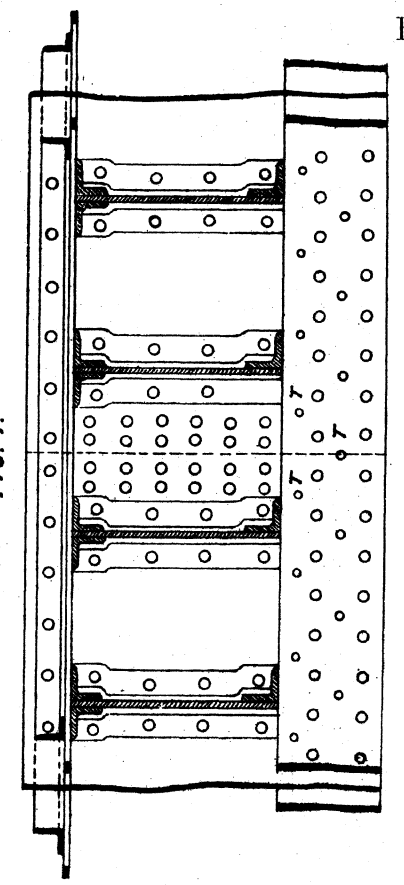
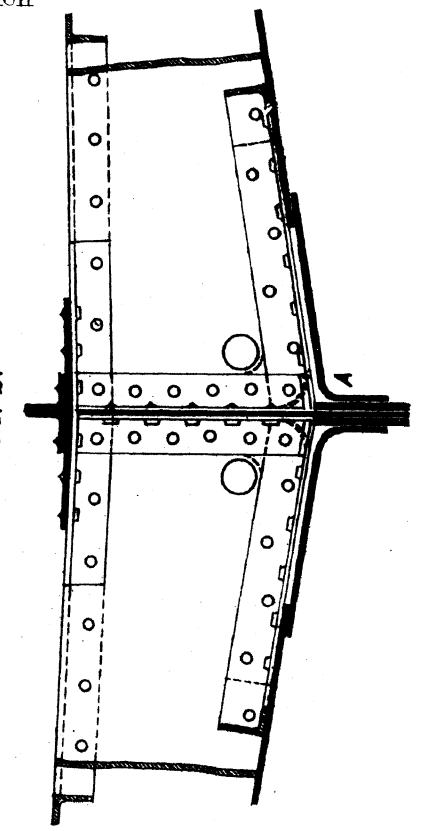


FIG. 2.



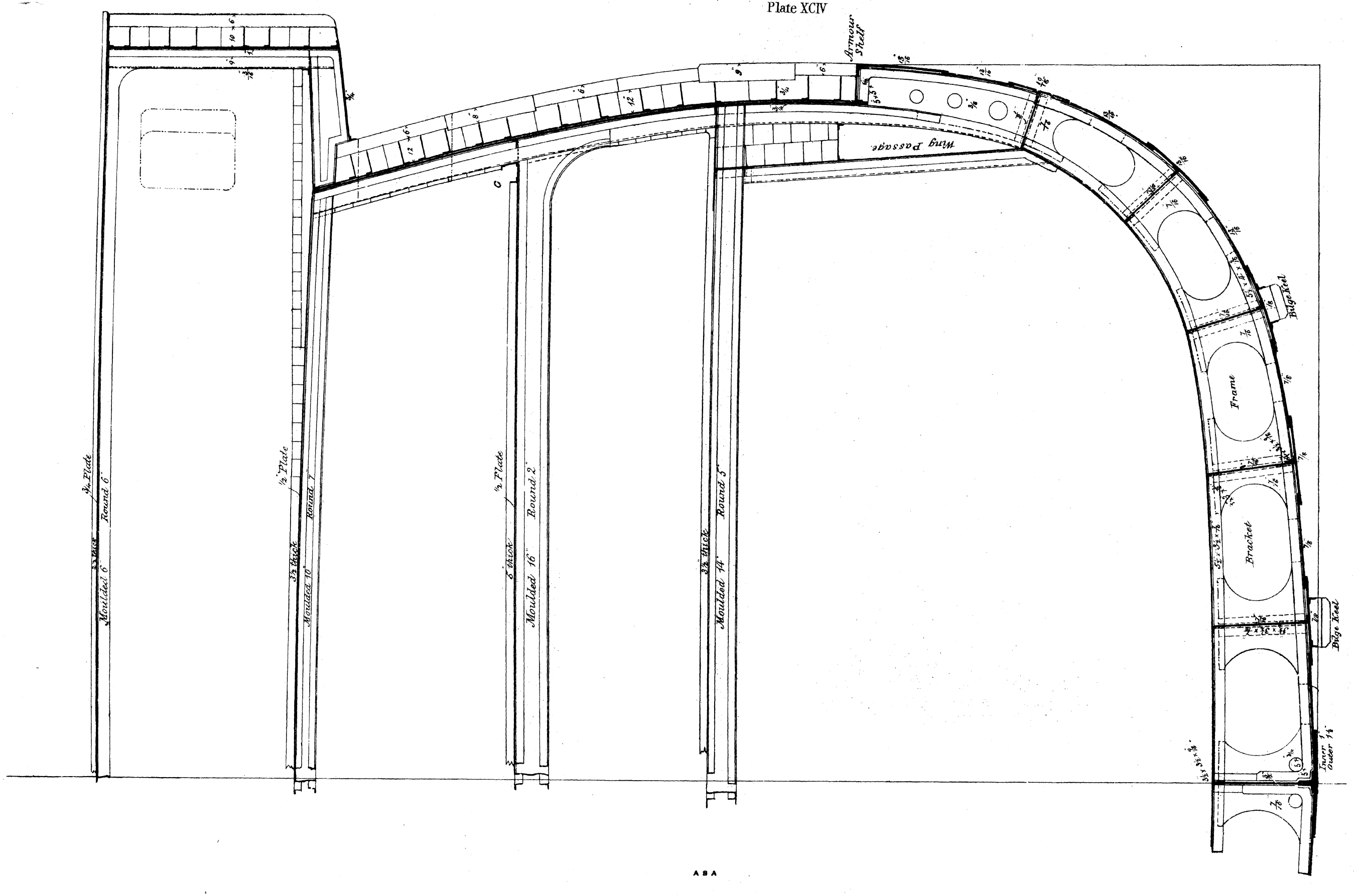

Armour Shelf
Wing Passage
Bilge Keel
Frame
Bracket
Bilge Keel
Inner 1"
Outer 14"
¾ Plate
Moulded 6"
Round 6"
½ Plate
⅜ thick
Moulded 10"
Round 7"
½ Plate
⅜ thick
Moulded 16"
Round 2"
⅜ thick
Moulded 14"
Round 5"

FIG. 1.

PLAN.

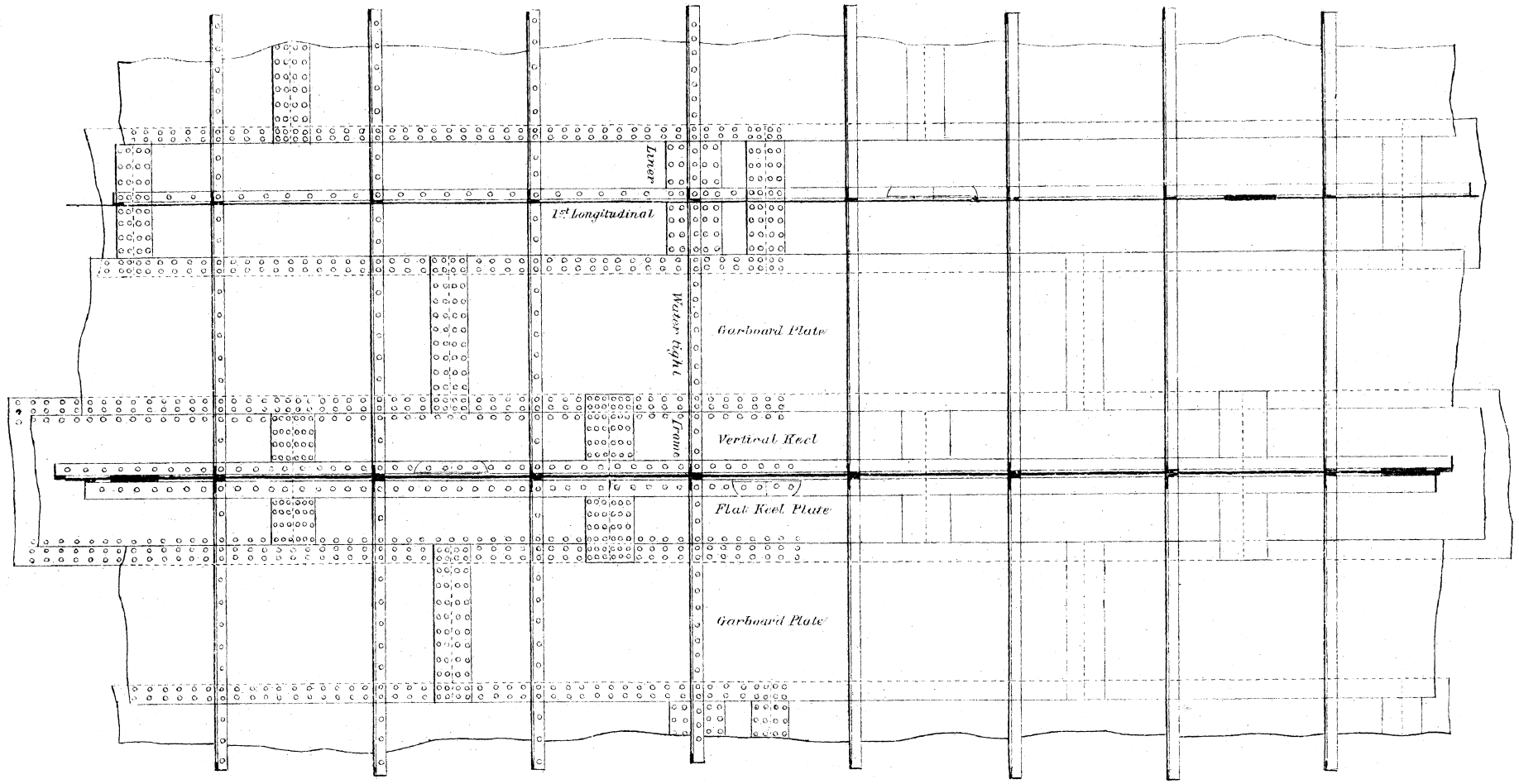
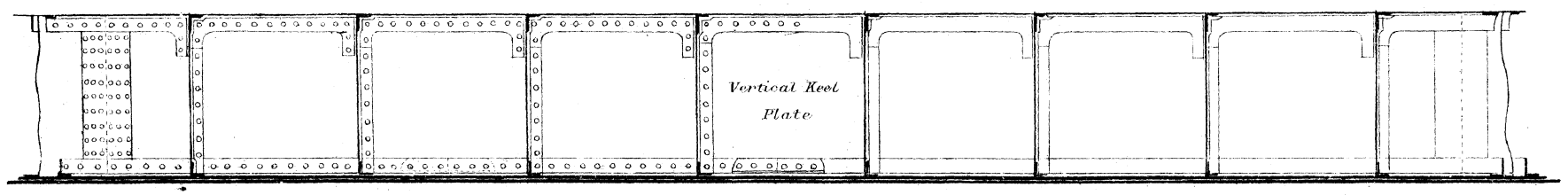


FIG. 2.

ELEVATION.



ASA

Midship Section of a Sheathed Iron Corvette.

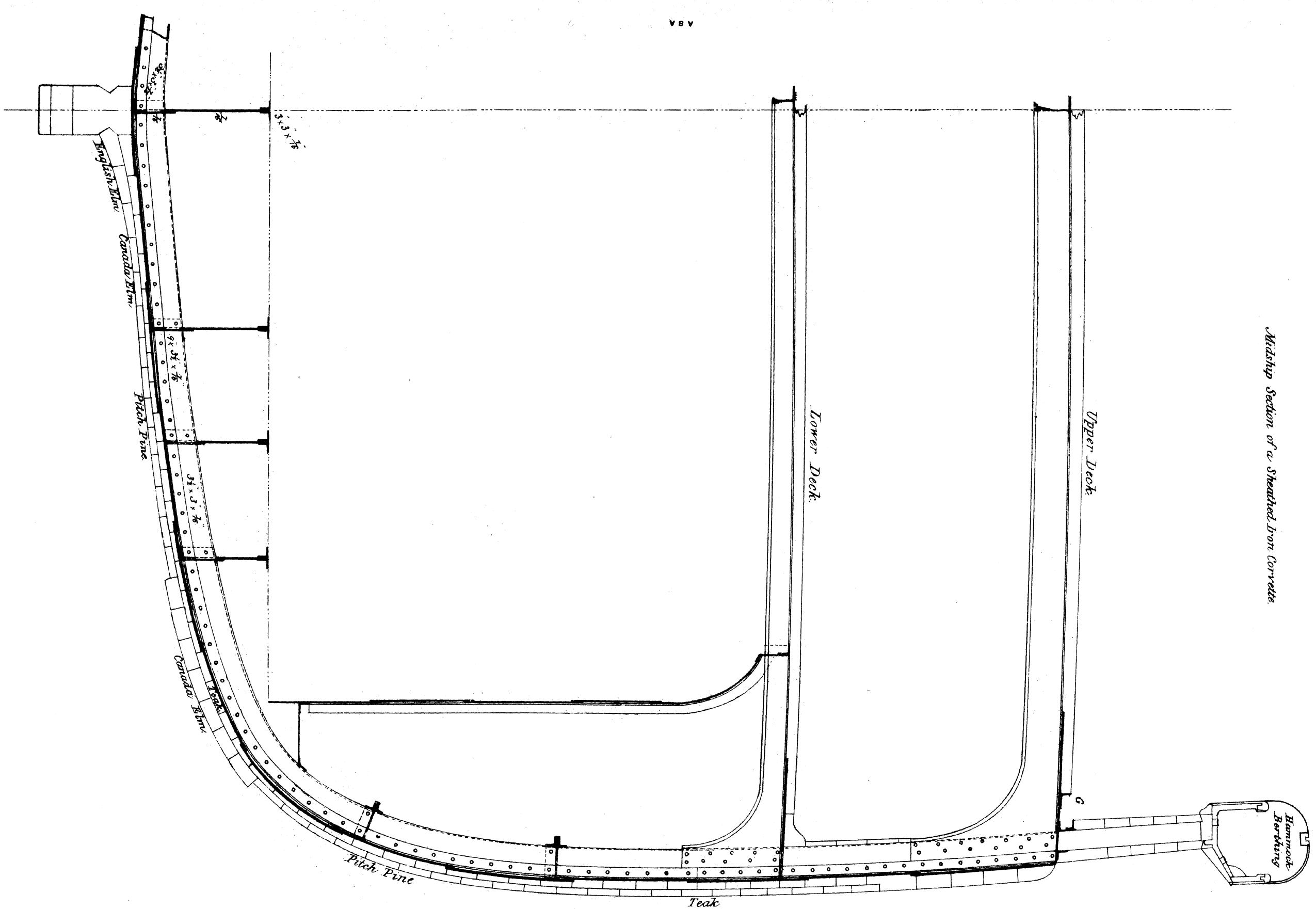


Plate XCVI

Plate XCVII

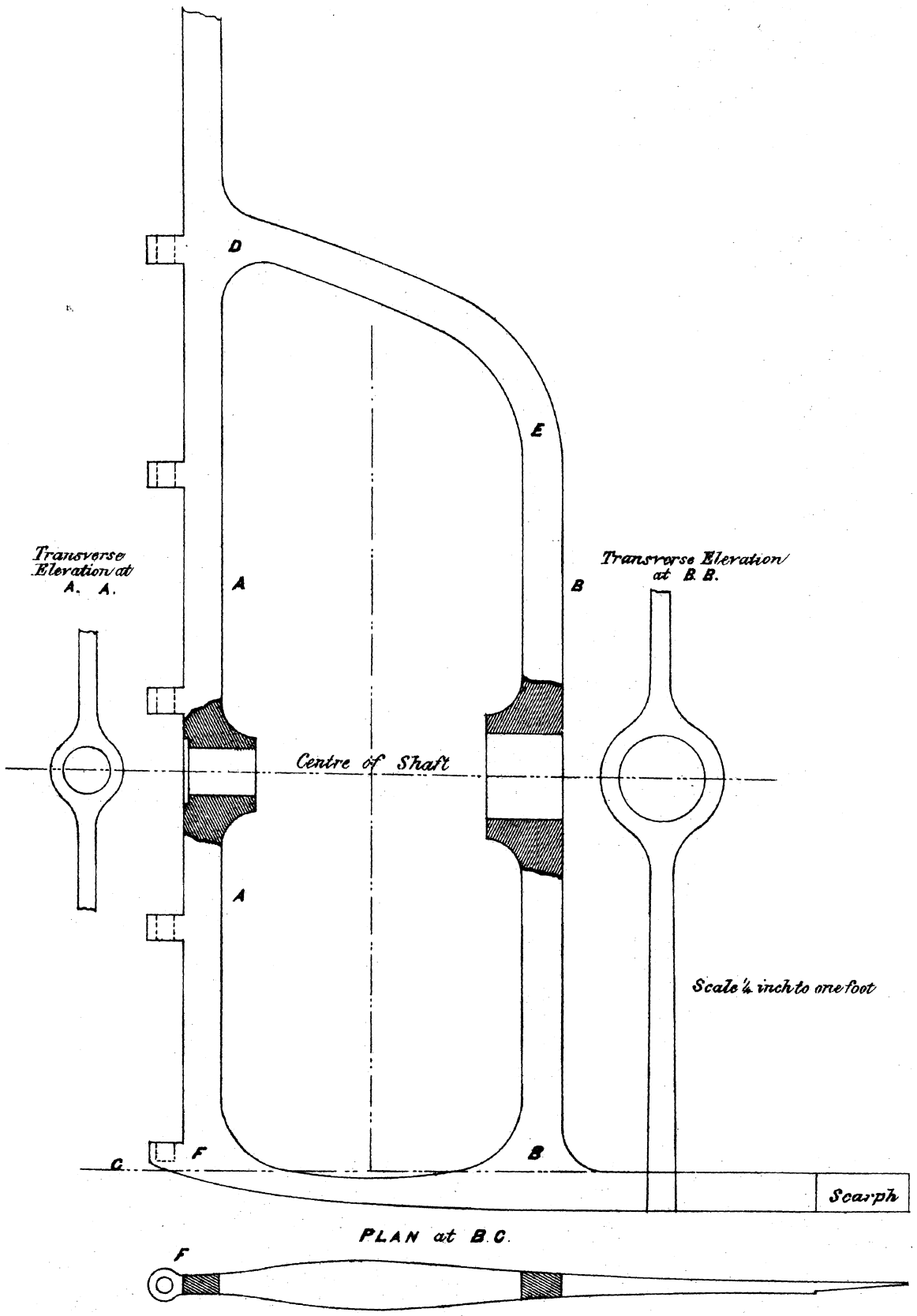
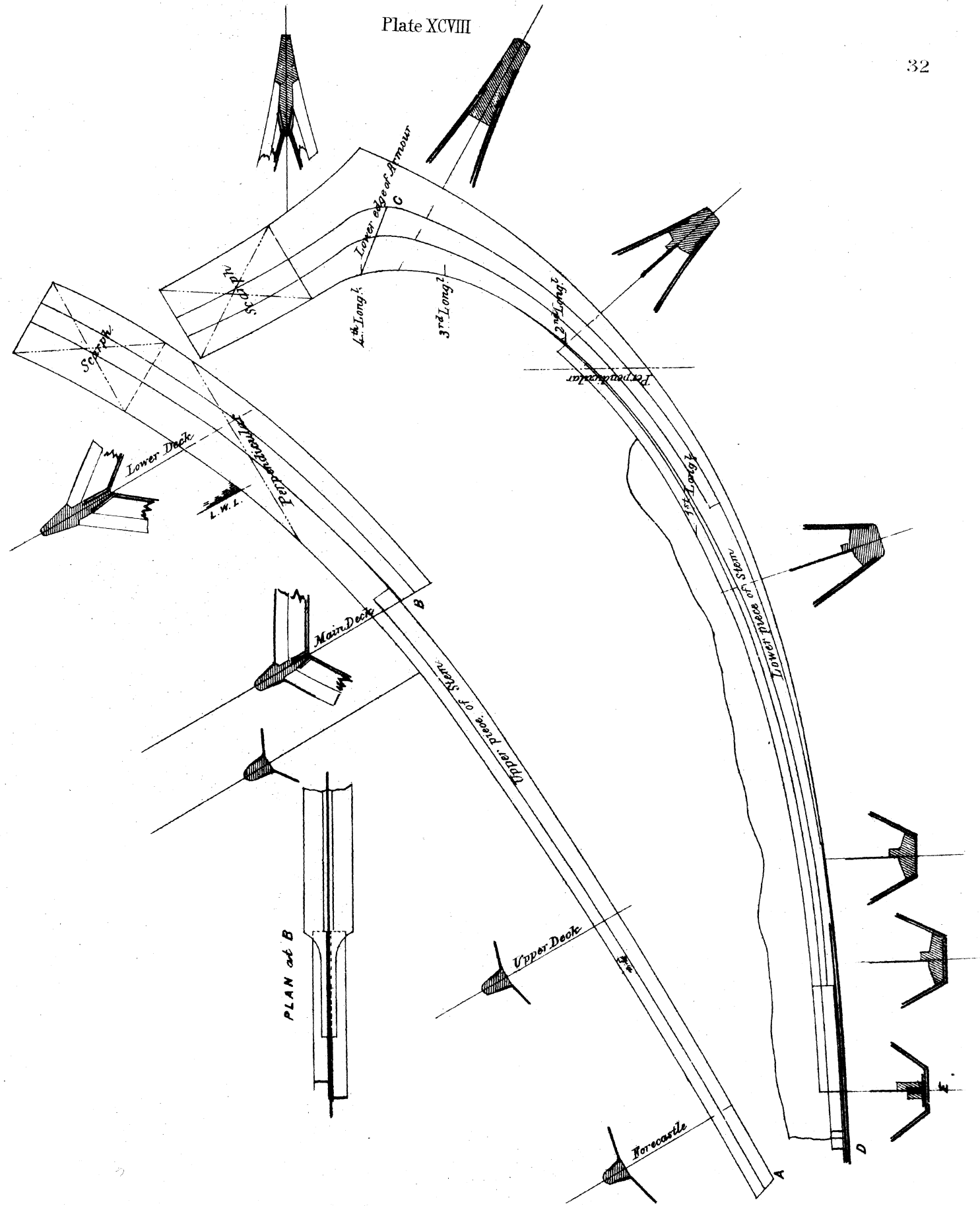


Plate XCVIII



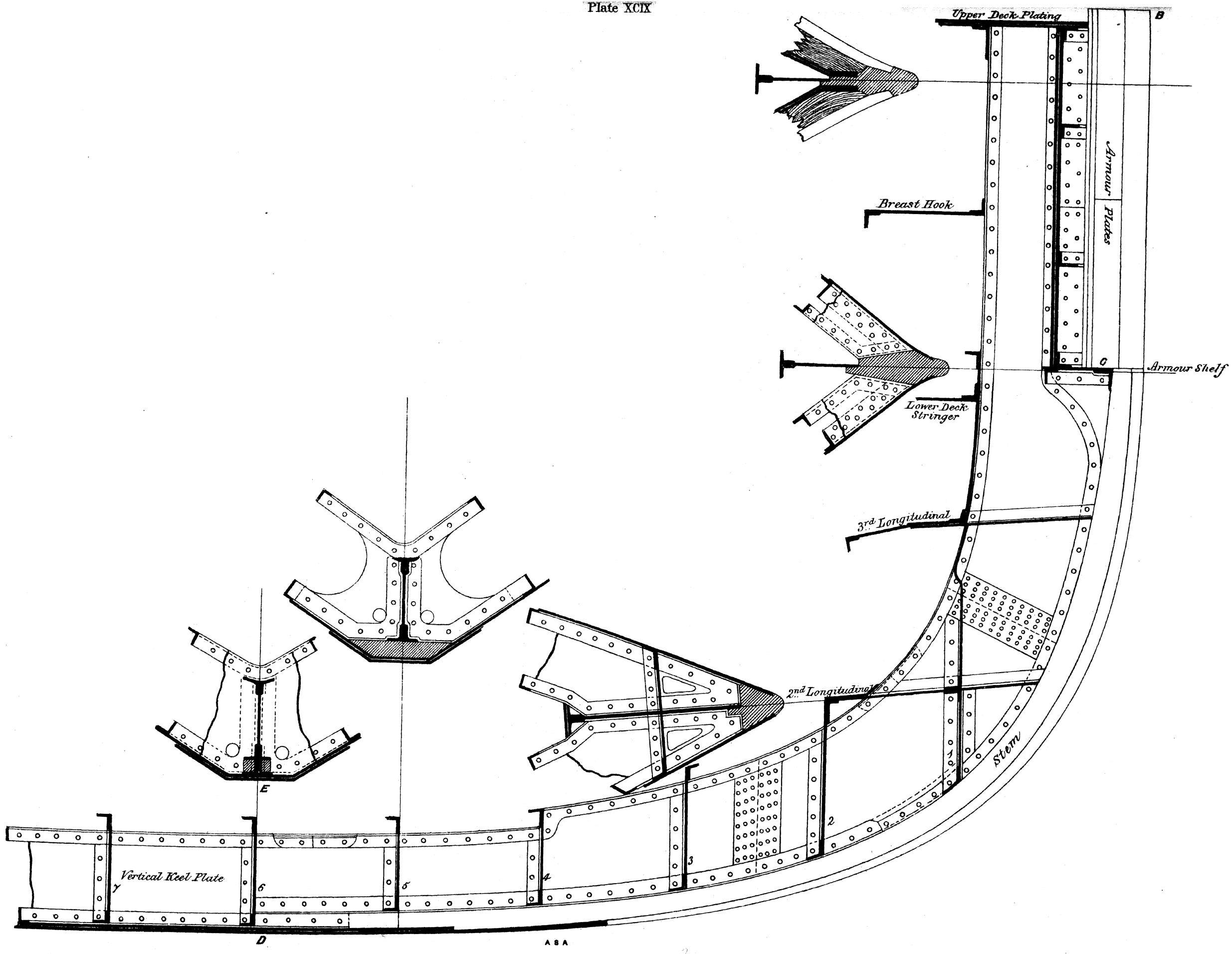

Upper Deck Plating
B
Armour Plates
Breast Hook
Armour Shelf
G
Lower Deck Stringer
3rd Longitudinal
2nd Longitudinal
Stern
Vertical Keel Plate
E
D
A
B
A
1
2
3
4
5
6
7
8
9

Plate C

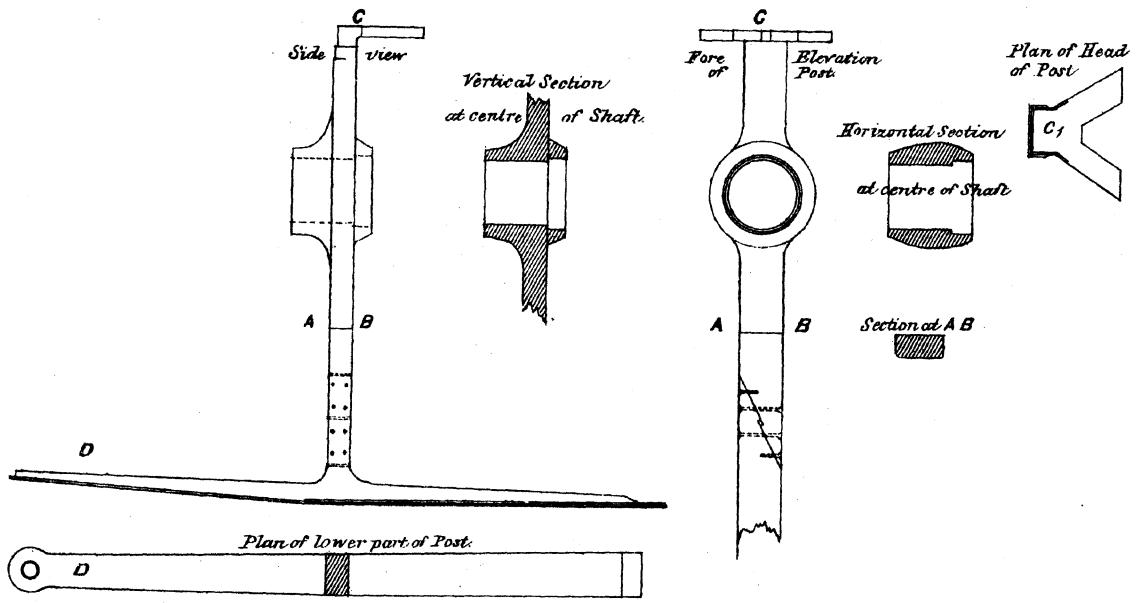
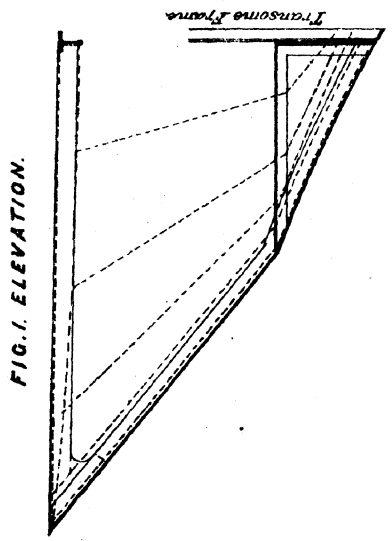


Plate CI



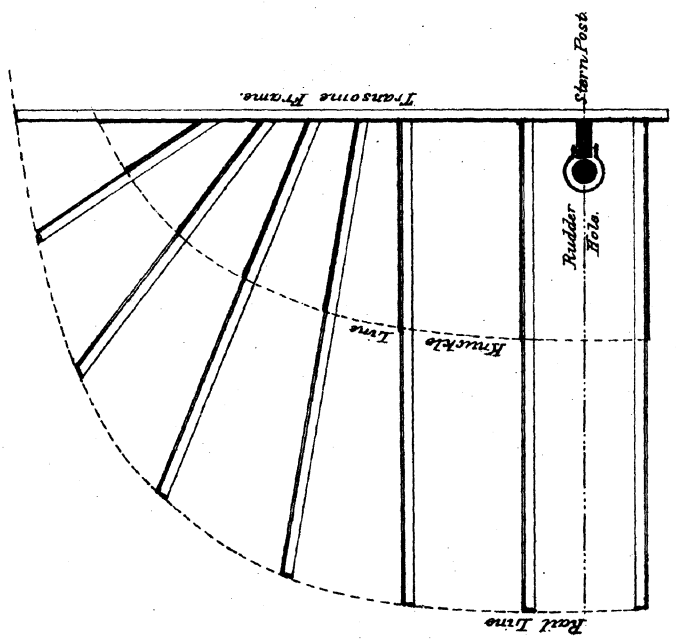
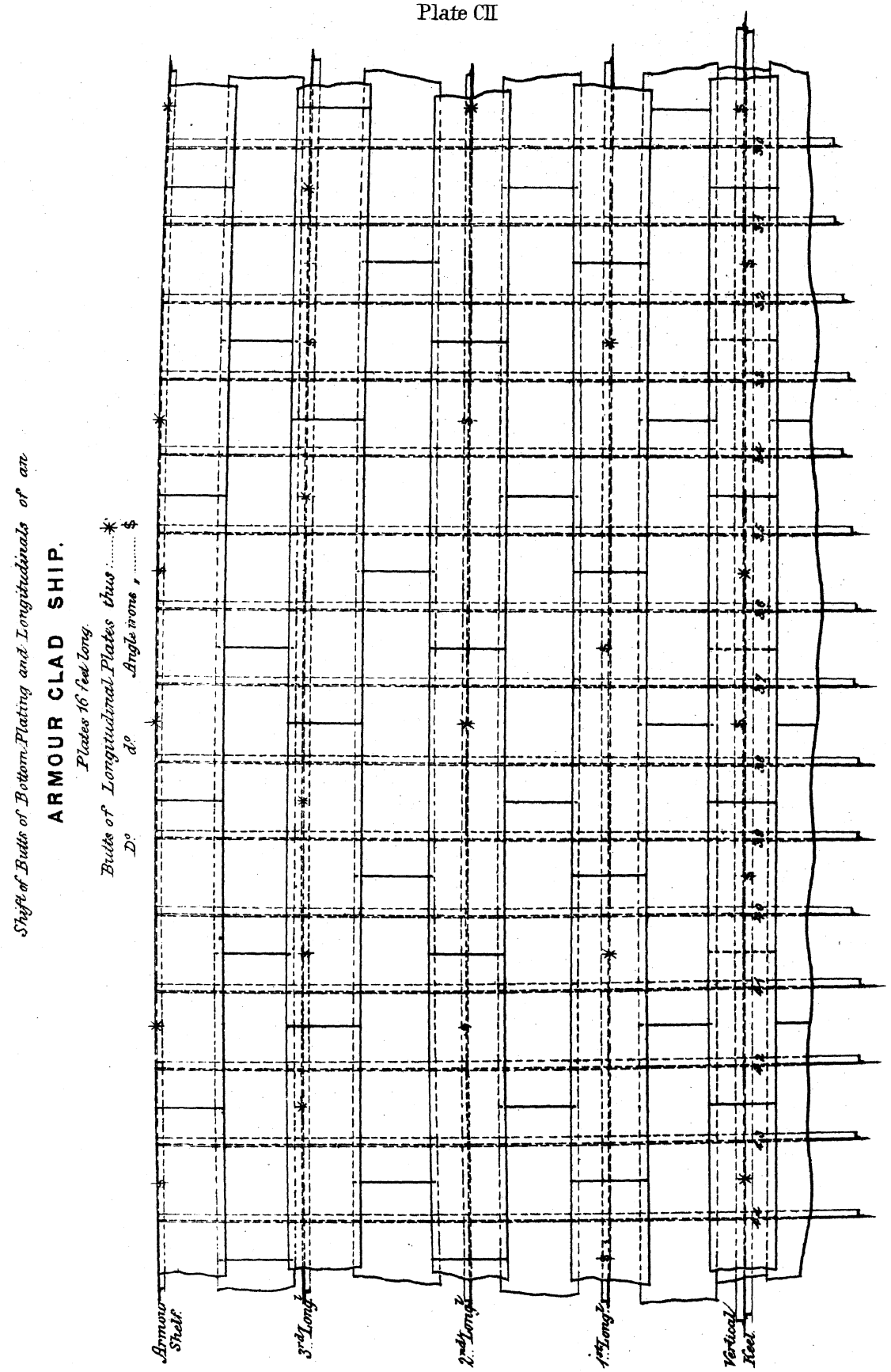
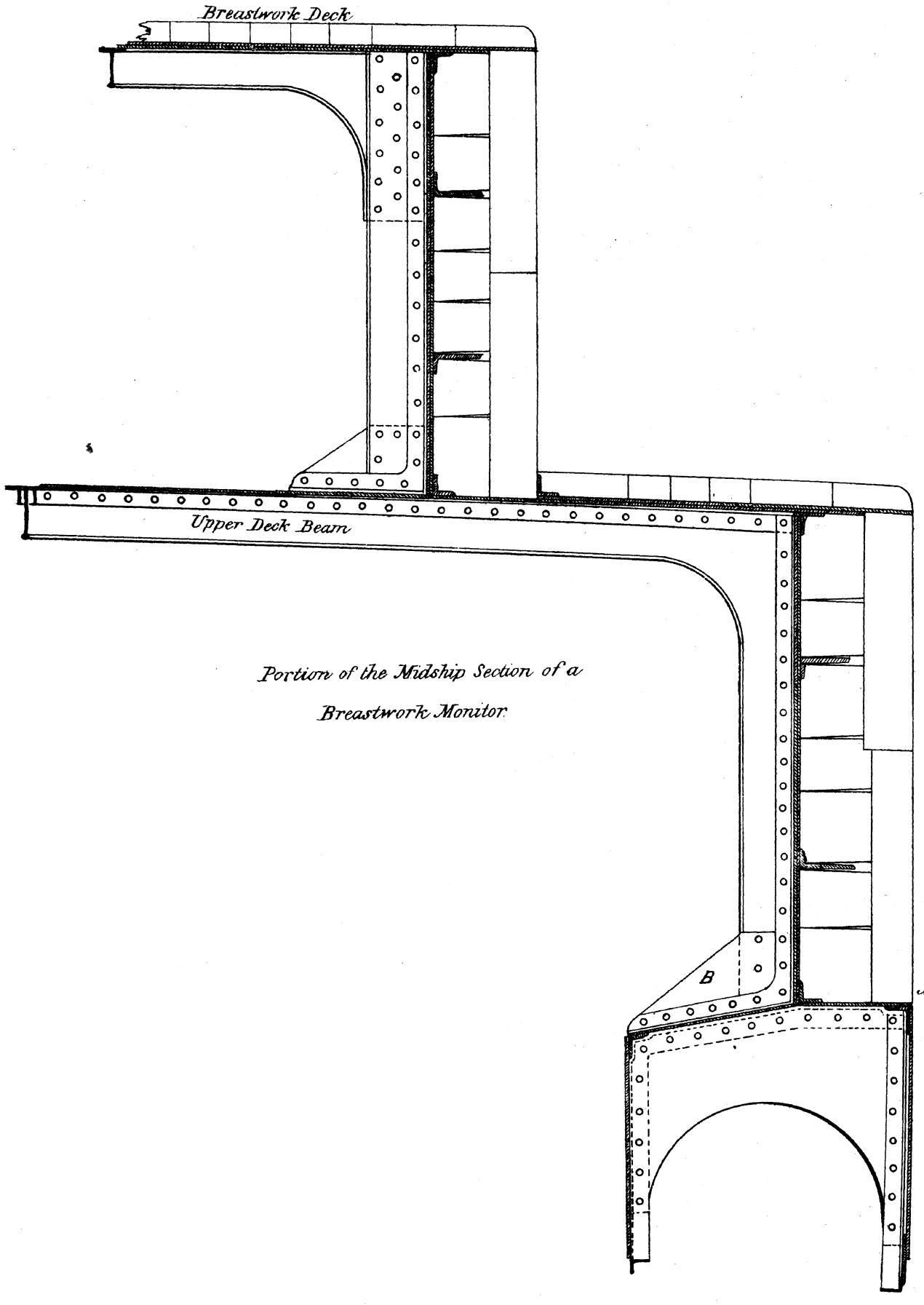


Plate CII





Portion of the Midship Section of a

Breastwork Monitor

Plate CIV

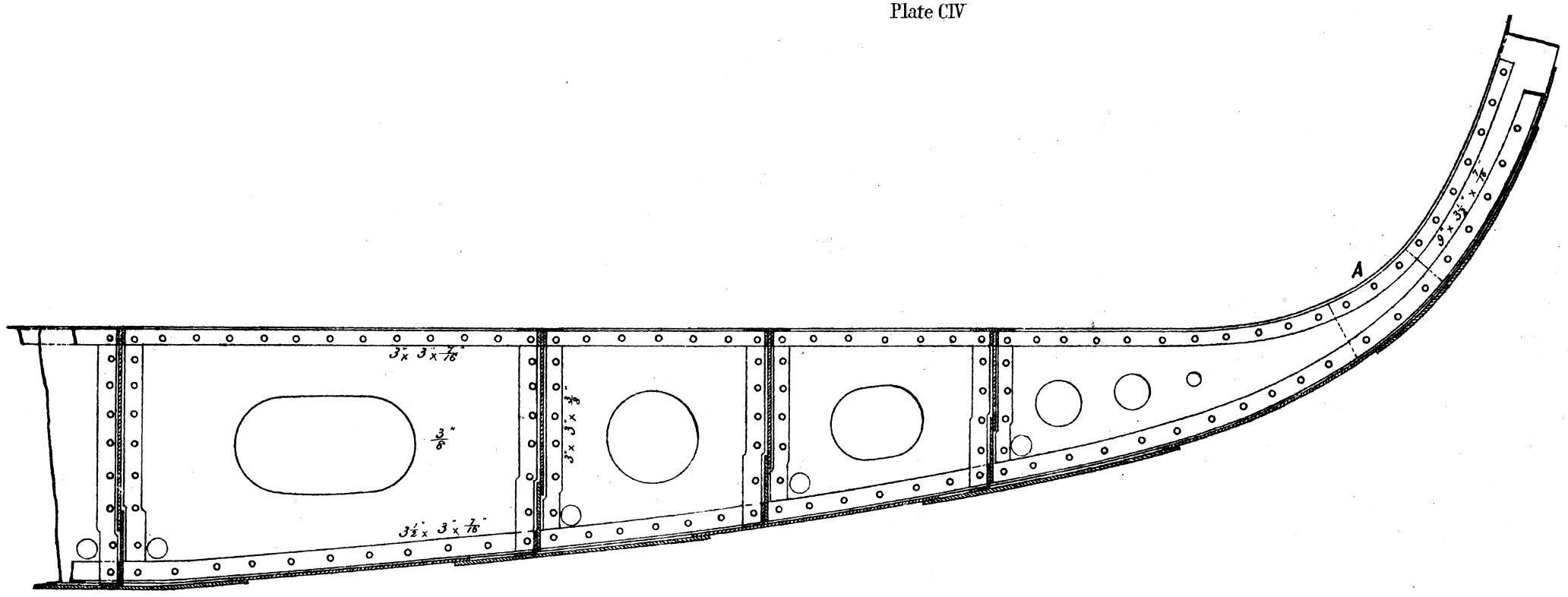


Plate CV

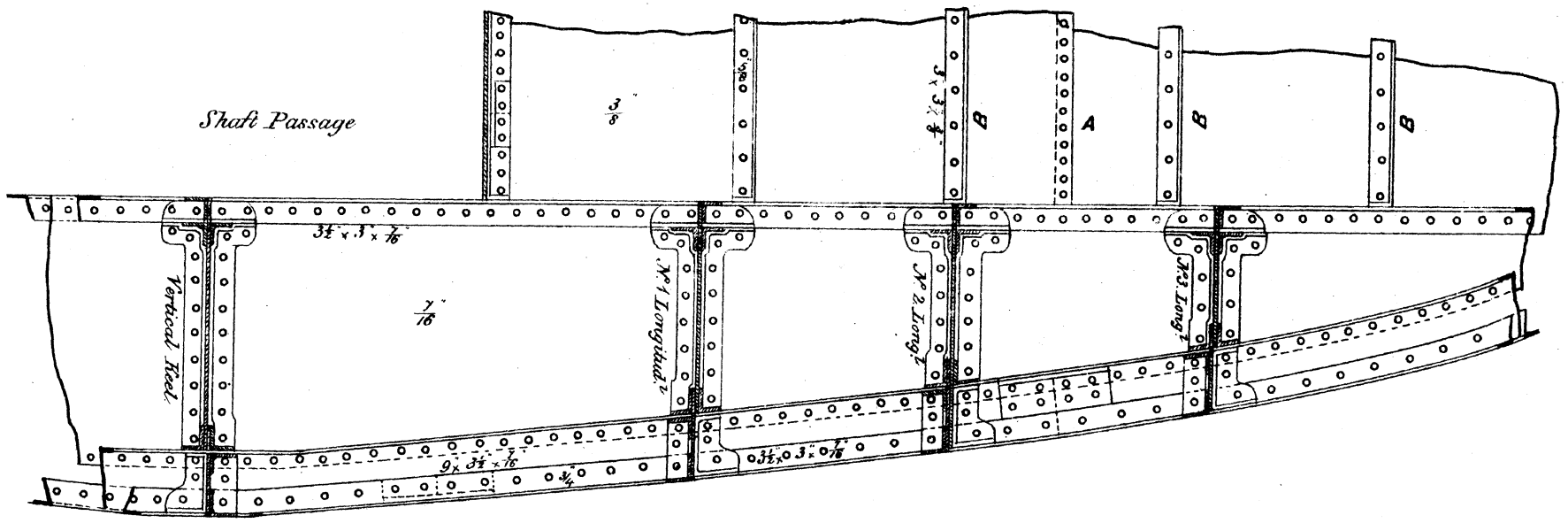
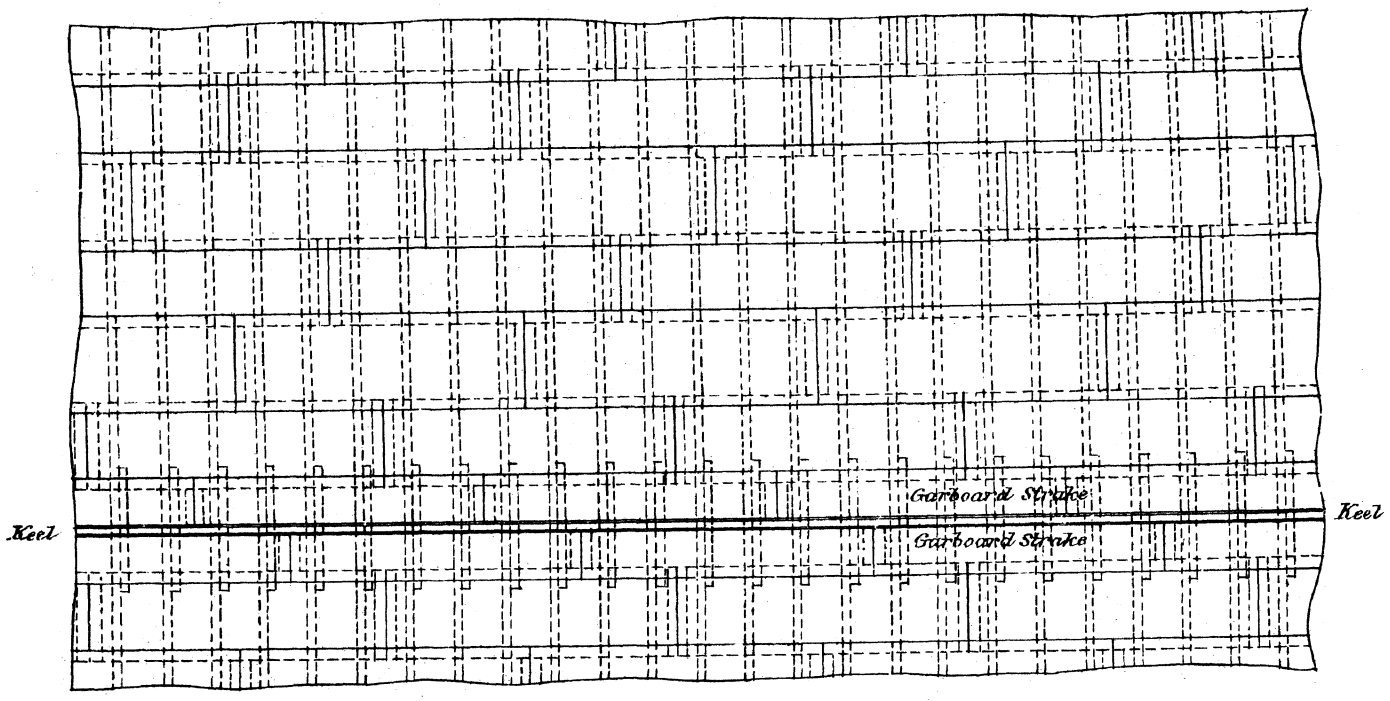


Plate CVI

Diagonal Shift of Butts.

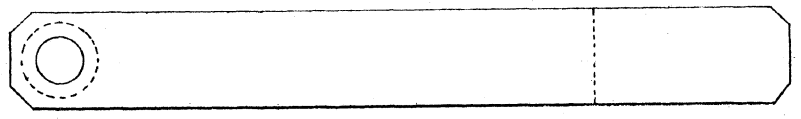


Scale ½ of an inch to the foot

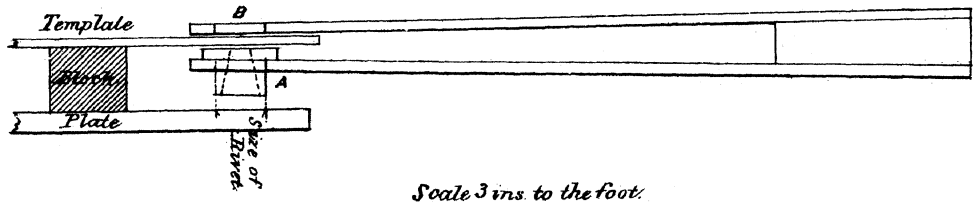
Plate CVII

Reversing Tool for marking Rivet Holes.

PLAN.



ELEVATION.



Scale 3 ins. to the foot.

Plate CVIII

Expansion of Bottom Plating, forward.

Butts of Longitudinal Plates, thus:-

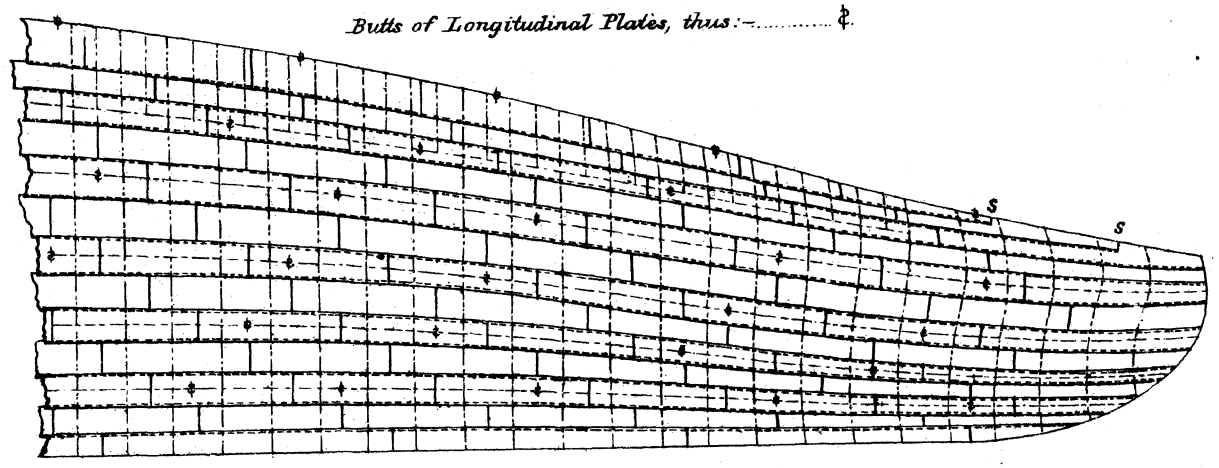


Plate CIX

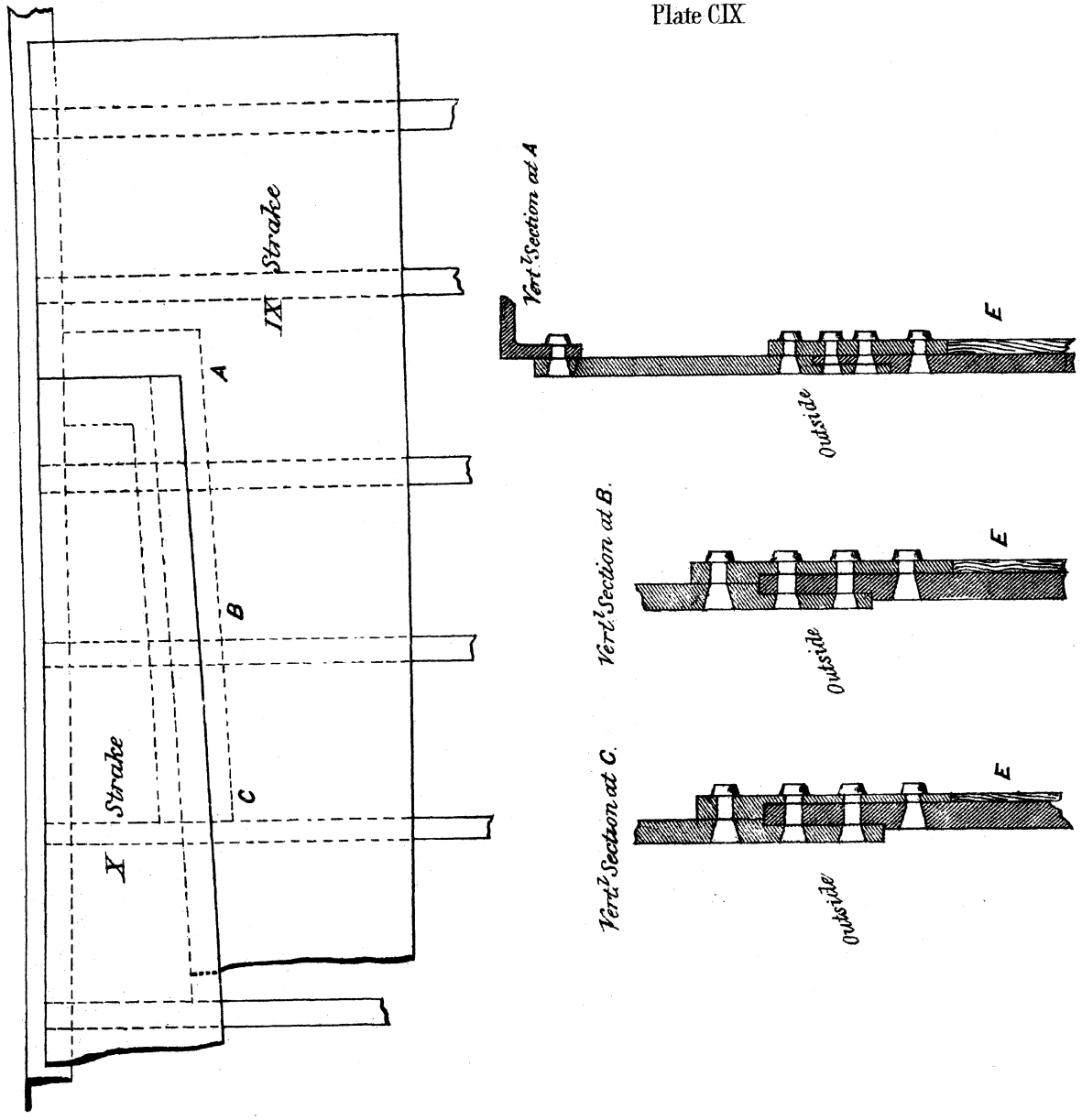


Plate CX

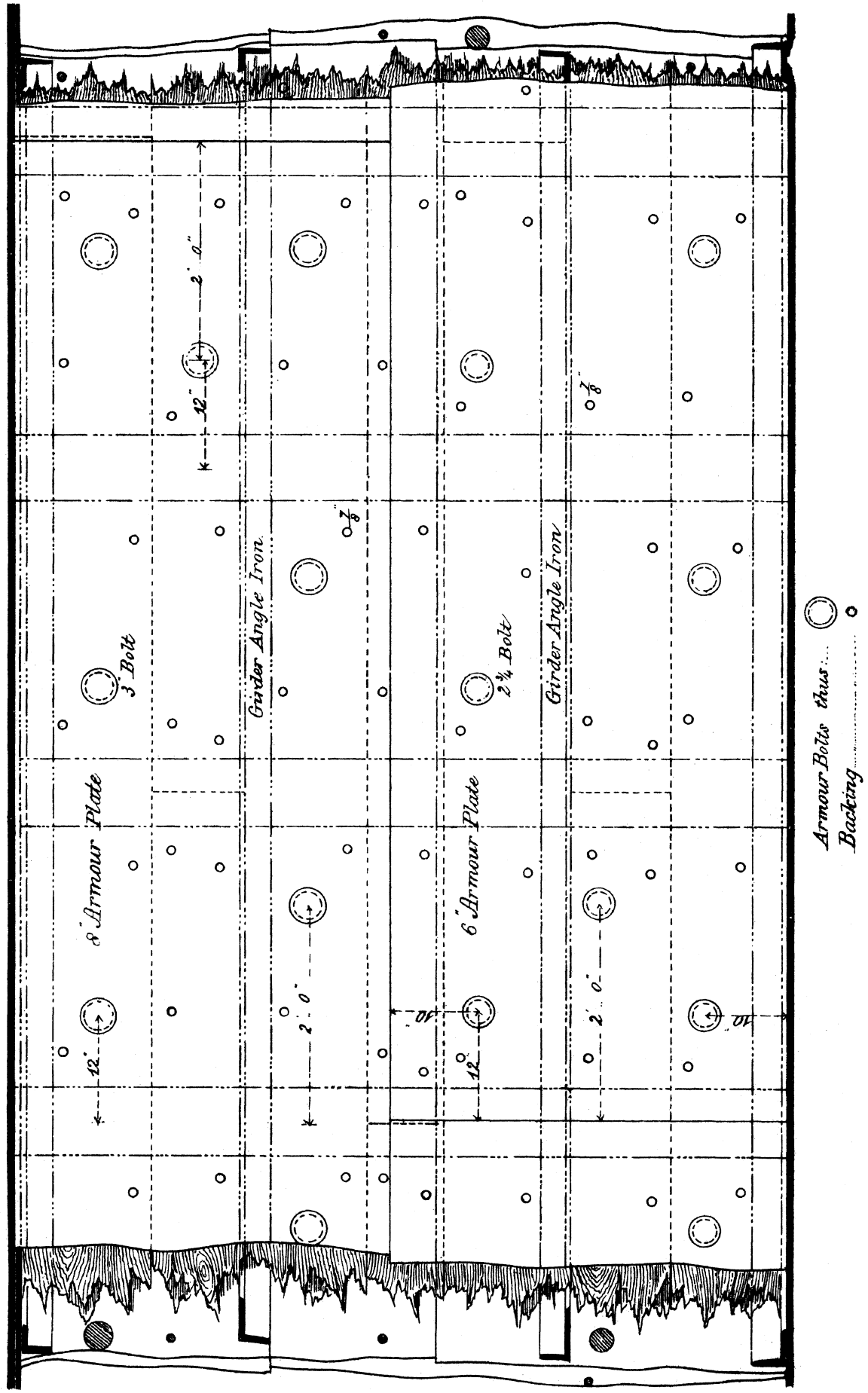
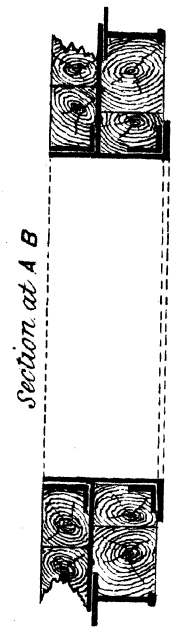


Plate CXI



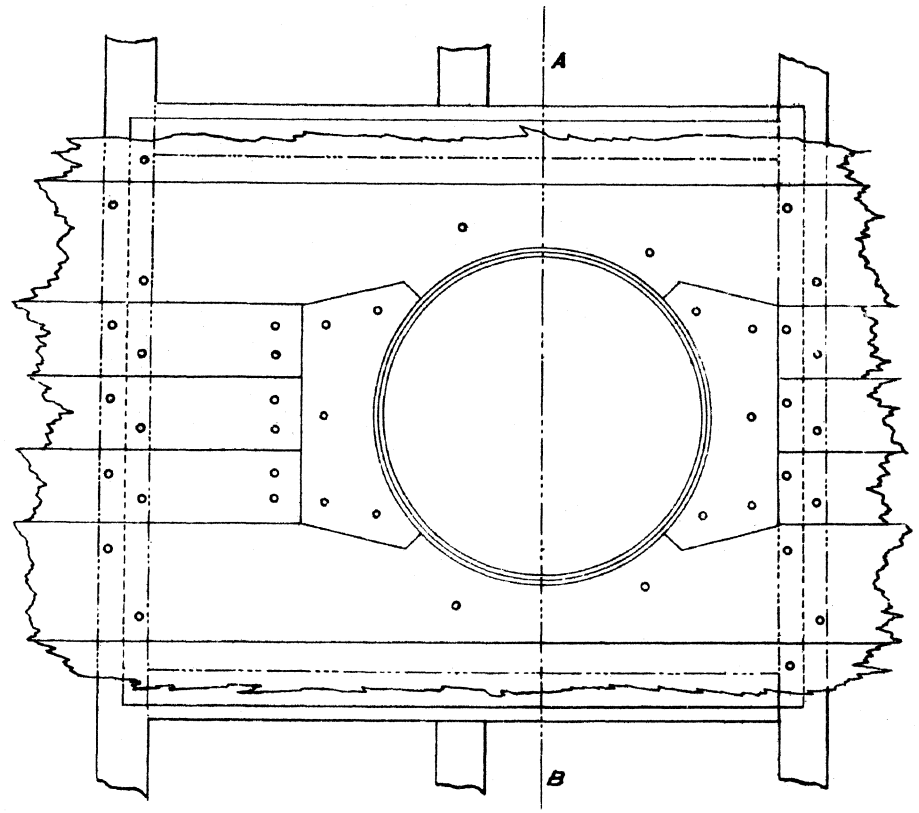
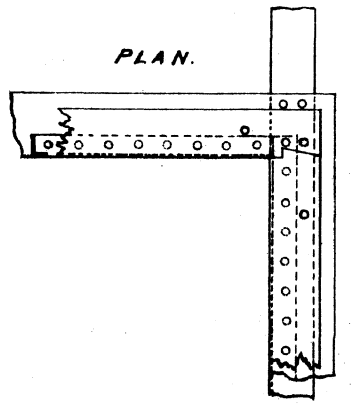
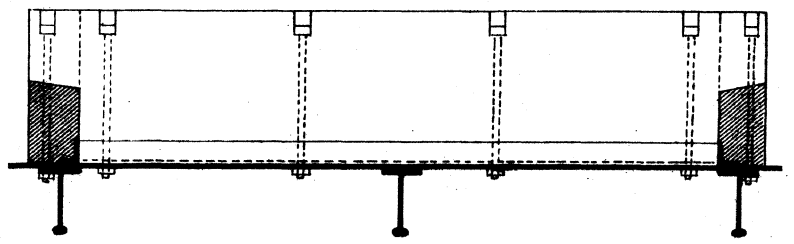
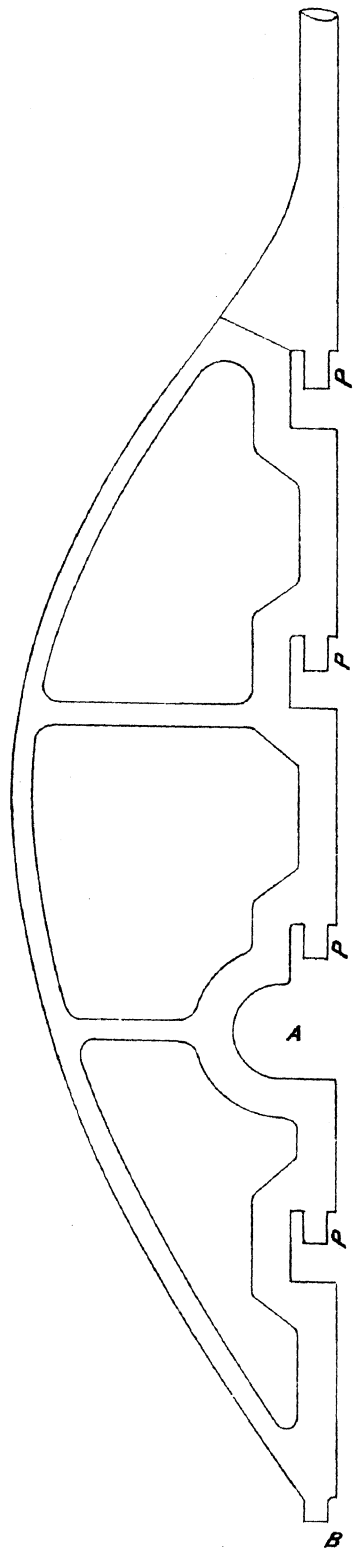


Plate CXII



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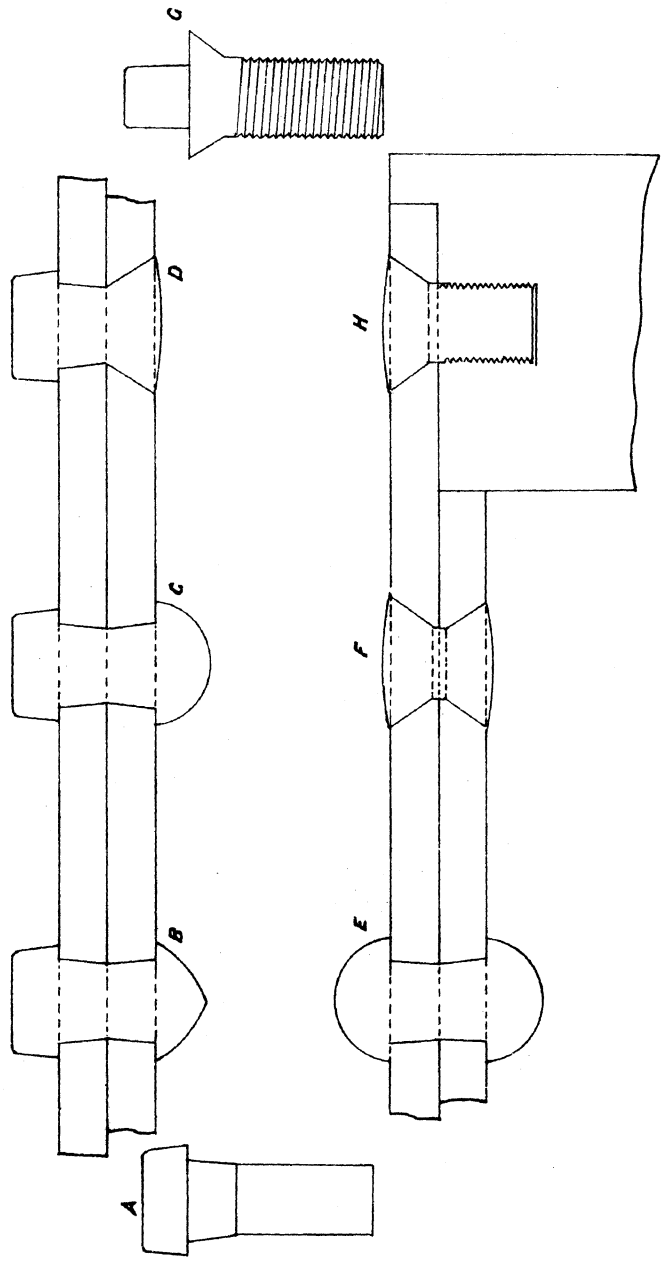
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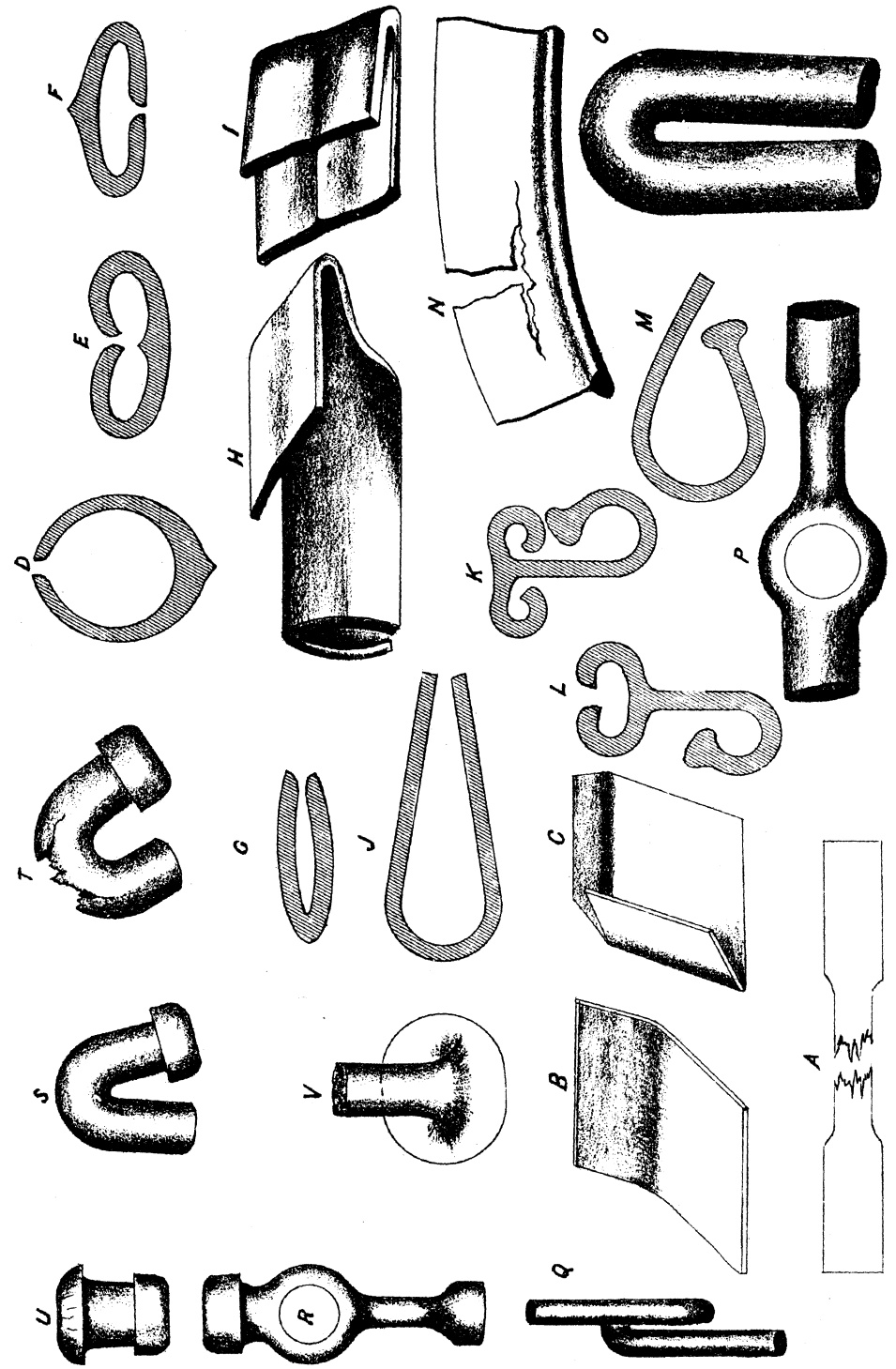
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Plate CXVI

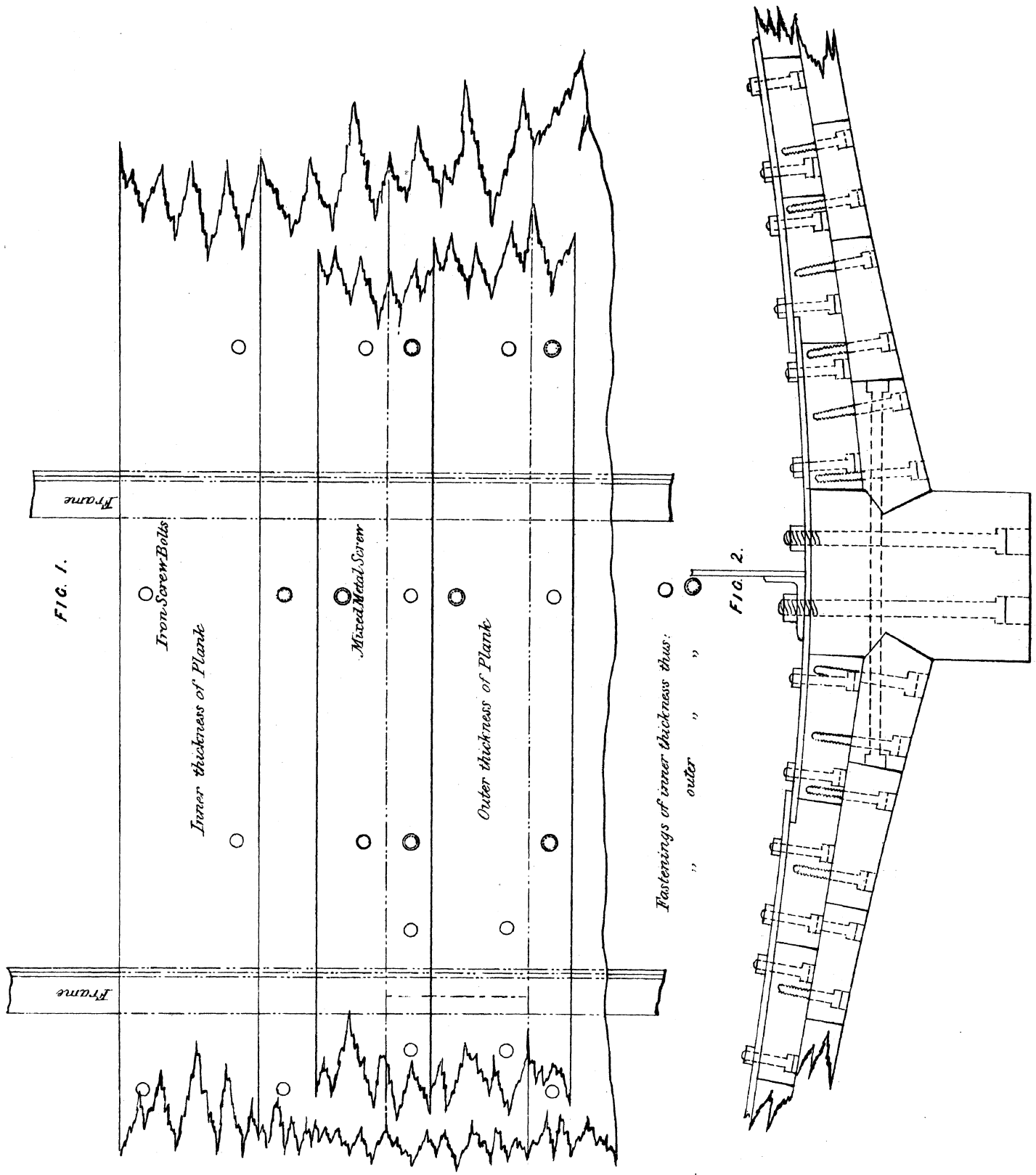
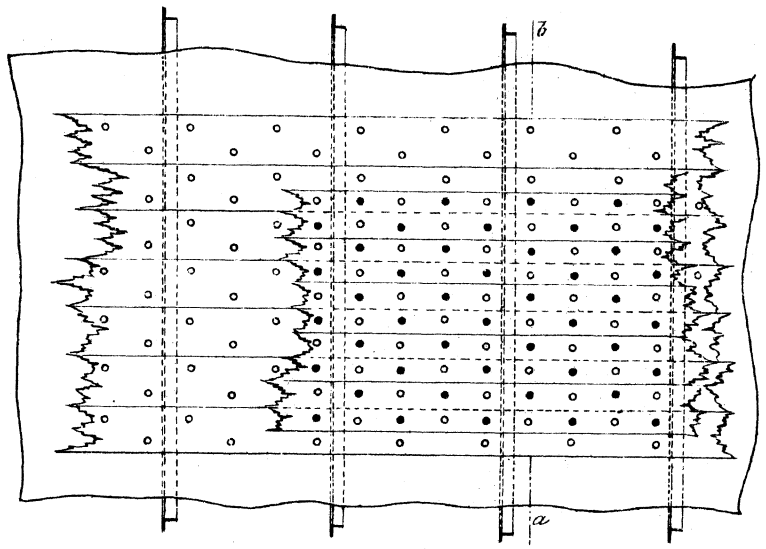
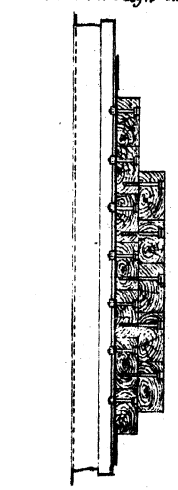


Plate CXVII

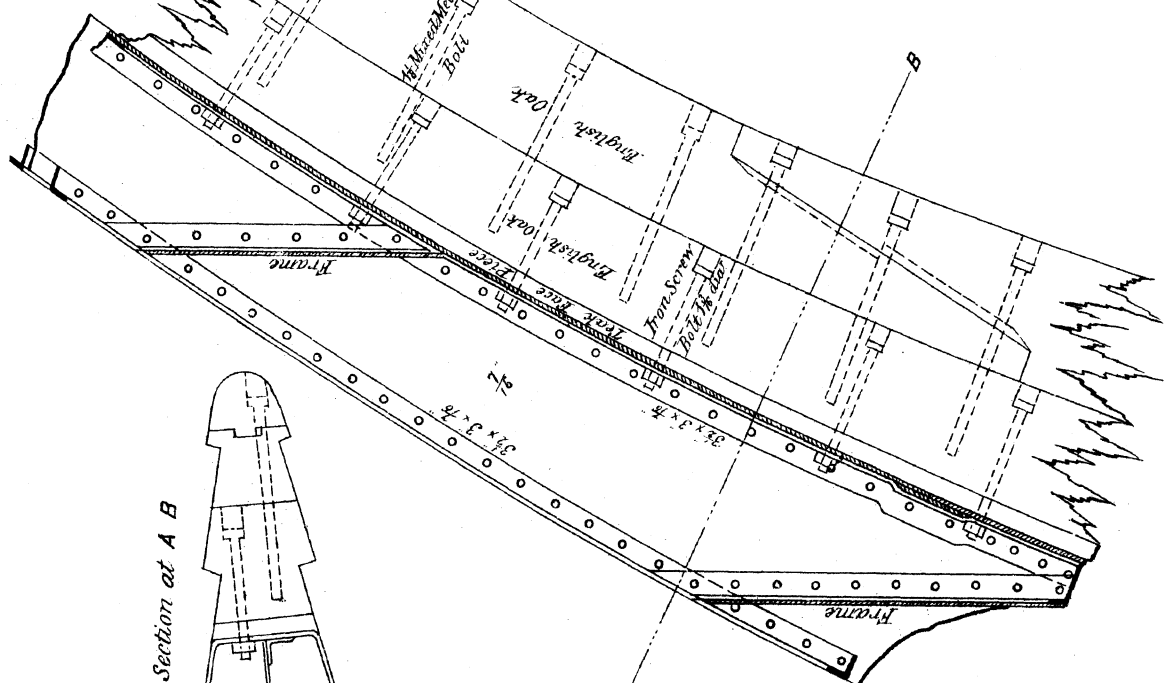


Section through a.b.

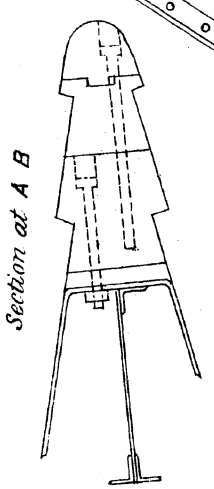


○ 1 Inch Iron Bolts for fastening inner sheathing.
● ⅝ " Metal " " " outer "

Plate CXVIII

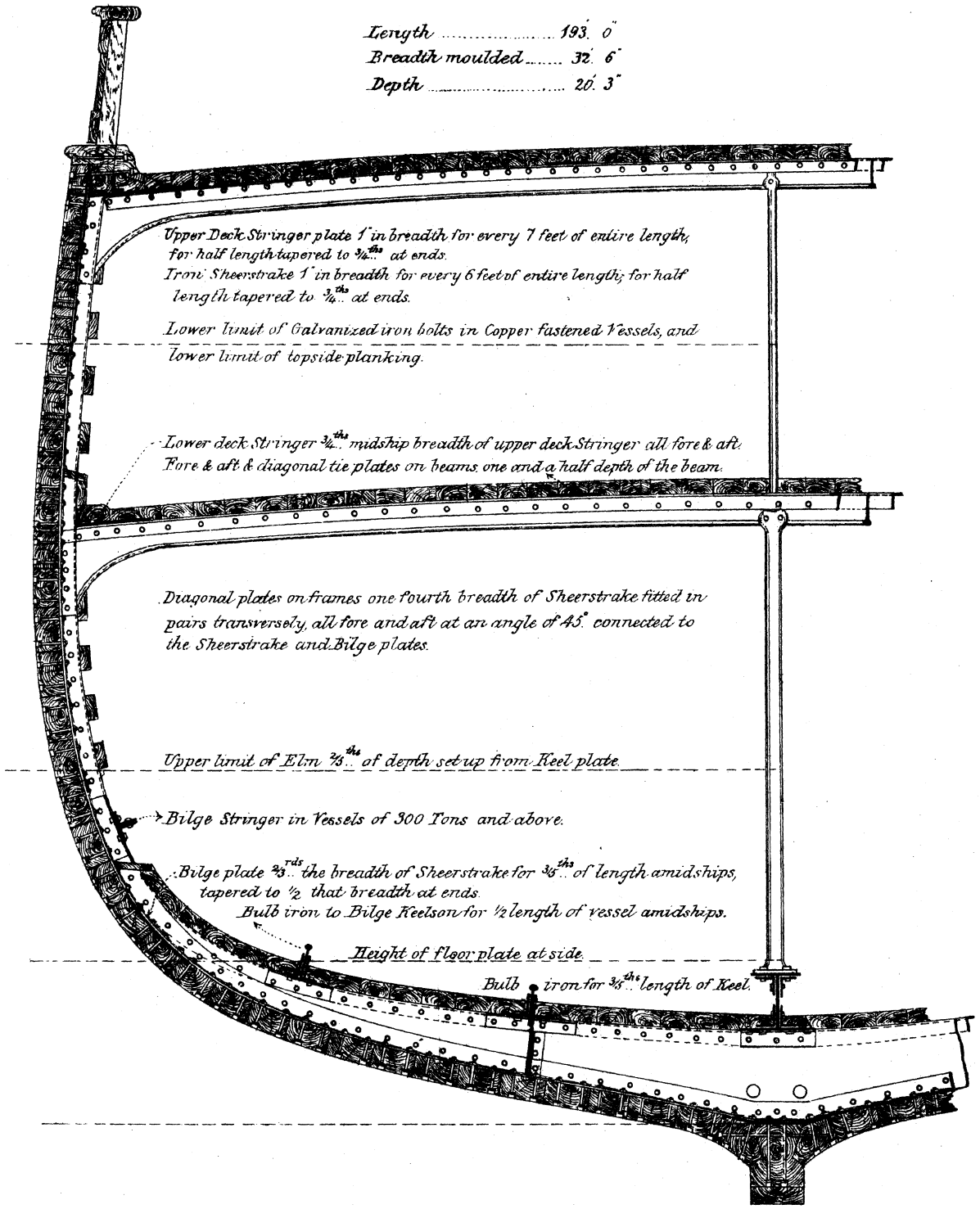


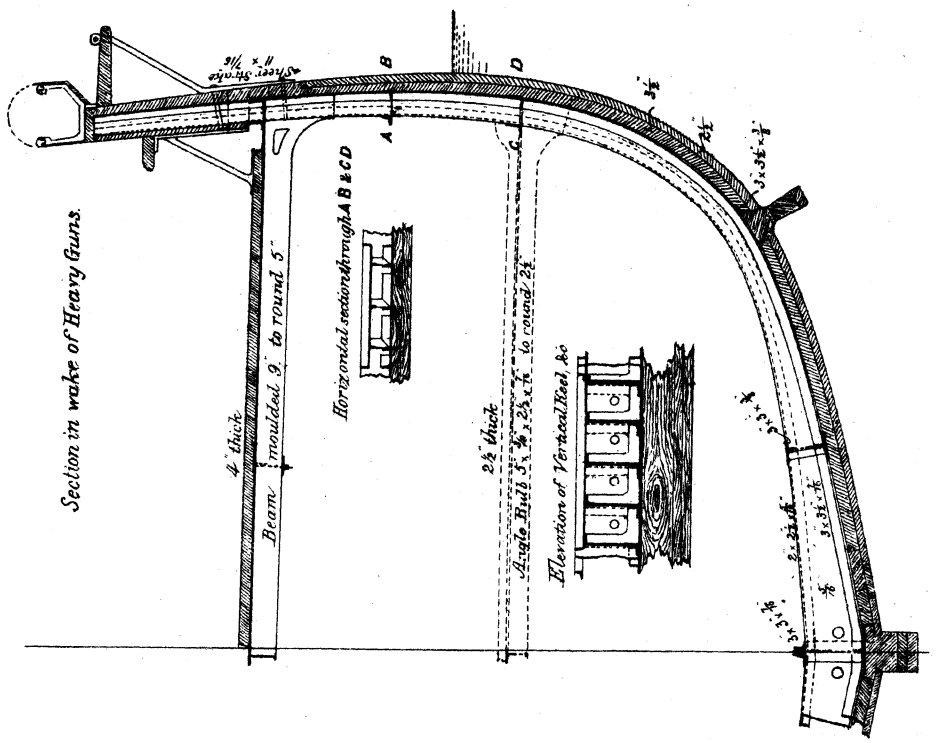
Section at A B

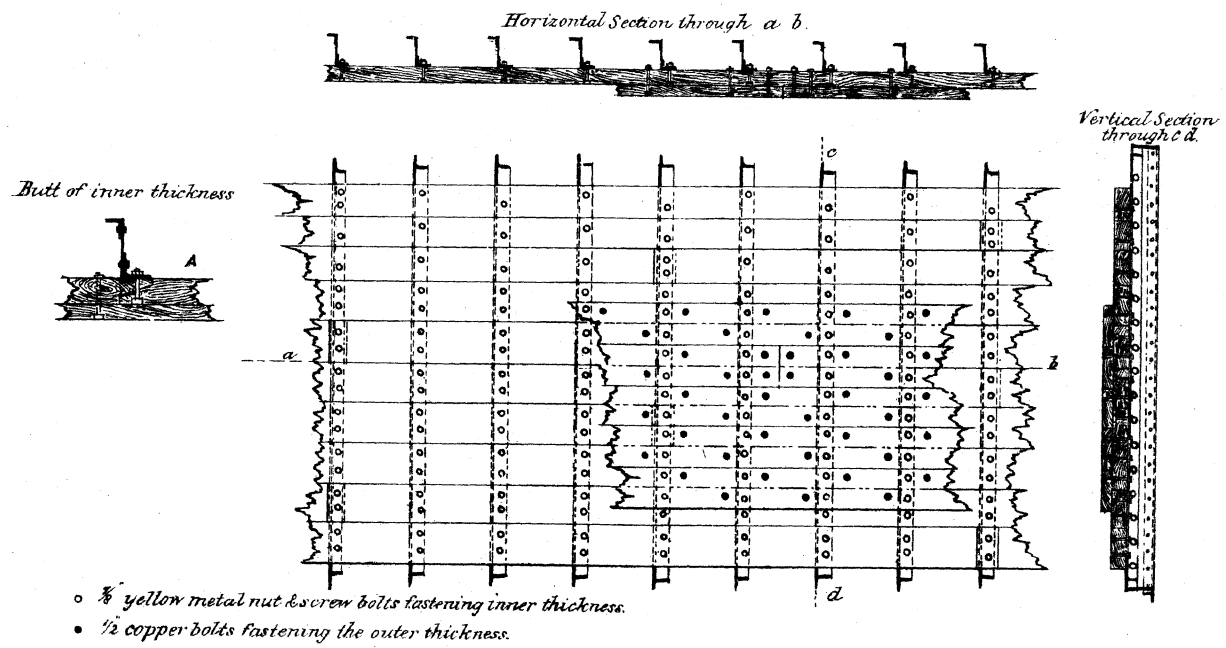


HALF MIDSHIP SECTION OF A VESSEL WITH TWO DECKS, OF 800 & UNDER 900 TONS, BY LLOYD'S RULES.

Length ..... 193. 0"
Breadth moulded ..... 32. 6"
Depth ..... 20. 3"


Upper Deck Stringer plate 1" in breadth for every 7 feet of entire length; for half length tapered to 3/4ths at ends.
Iron Sheerstrake 1" in breadth for every 6 feet of entire length; for half length tapered to 3/4ths at ends.
Lower limit of Galvanized iron bolts in Copper fastened Vessels, and lower limit of topside planking.
Lower deck Stringer 3/4ths midship breadth of upper deck Stringer all fore & aft.
Fore & aft & diagonal tie plates on beams one and a half depth of the beam.
Diagonal plates on frames one fourth breadth of Sheerstrake fitted in pairs transversely, all fore and aft at an angle of 45° connected to the Sheerstrake and Bilge plates.
Upper limit of Elm 2/3rds of depth set up from Keel plate.
Bilge Stringer in Vessels of 300 Tons and above.
Bilge plate 2/3rds the breadth of Sheerstrake for 3/5ths of length amidships, tapered to 1/2 that breadth at ends.
Bulb iron to Bilge Keelson for 1/2 length of vessel amidships.
Height of floor plate at side.
Bulb iron for 3/5ths length of Keel.





○ ⅞ yellow metal nut & screw bolts fastening inner thickness.
● ½ copper bolts fastening the outer thickness.

Plate CXXII

FIG. 1.

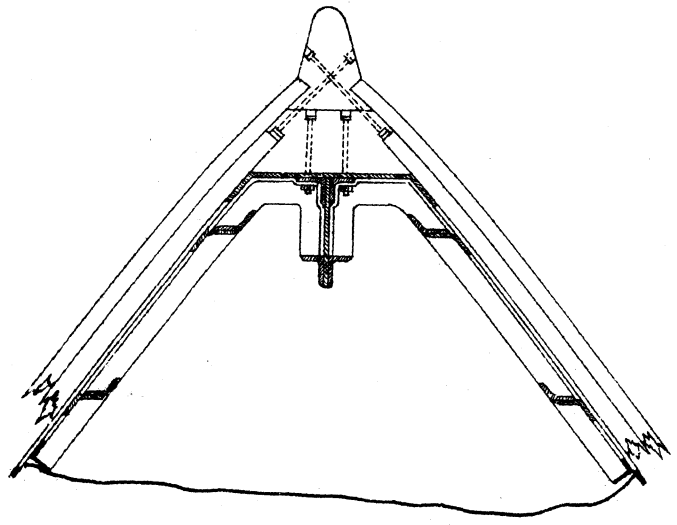


FIG. 2.

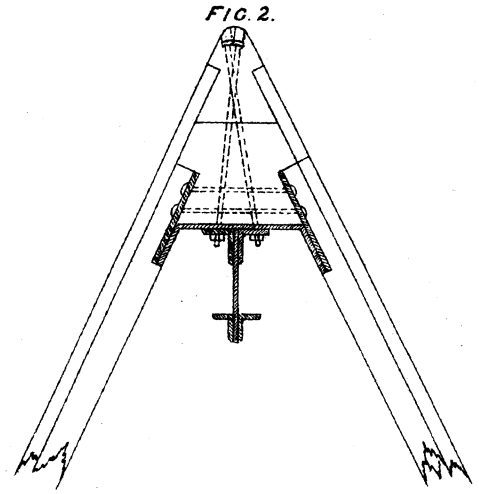


FIG. 3.

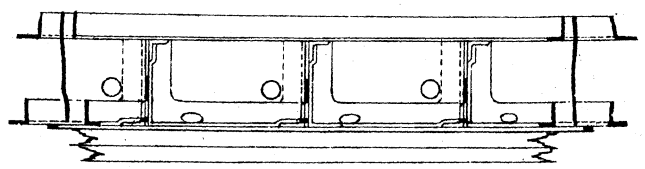
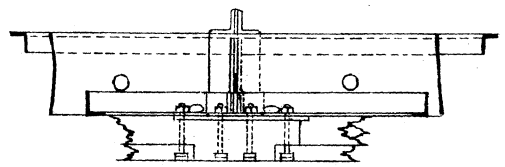


FIG. 4.



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